# UNIVERSITY OF KWAZULU-NATAL

## OPTIMISATION OF LOCAL CONTENT IN THE AUTOMOTIVE COMPONENT INDUSTRY IN KWA-ZULU NATAL

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# ABSTRACT

The South African government has acknowledged the global competitiveness of the automotive industry and has identified it as a key economic growth sector, with the aim of increasing vehicle production to 1.2 million units by 2020, while significantly increasing the value of local content to a target of 75%. The automotive industry has identified the automotive component industry as the most valuable source of contributing to increasing the value of local content in domestically assembled vehicles. It is imperative for the automotive component industry to focus on optimising local content by improving technology and capabilities to remain competitive globally.

The aim of this study was to determine the impact optimisation of local content in domestically assembled vehicles will have on the future growth potential of the automotive component sector. The objectives of the study examined the extent of localisation in the automotive component industry, the role of government in optimising local content, the challenges of optimising local content and economic impact of localisation on future growth of the industry. The objectives were explored through the aid of quantitative research and theory comparisons.

Sixty five component manufacturers located in a 100 km radius from Toyota South Africa assembly plant were targeted. A response rate of 72.3% was achieved using a questionnaire as the research instrument.

The respondents indicated that the two major challenges faced by the automotive component industry were, the local manufacturers pricing in comparison to global manufacturers was higher and the high level of dependence that local manufacturers have on foreign licences. A large percentage of the respondents believe that to optimise local content in locally assembled vehicles, government intervention and support will have to be at a high level. Improving internal competitiveness, rationalisation to achieve economies of scale and maximising government support are some of the key drivers to achieving optimal local content in the automotive component industry.

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## List of Acronyms and Abbreviations

| | |
|---|---|
| AIEC | Automotive Industry Export Council |
| AIDC | Automotive Industry Development Centre |
| AIS | Automotive Incentive Scheme |
| APDP | Automotive Production and Development Programme |
| CBU | Completely built up |
| CKD | Completely knocked down |
| DTI | Department of Trade and Industry |
| GDP | Gross Domestic Product |
| IRCC | Import-duty Rebate Credit Certificate |
| ITAC | International Trade and Administration Commission |
| JIT | Just in Time |
| KZN | KwaZulu-Natal |
| LCV | Light Commercial Vehicles |
| MIDP | Motor Industry Development Plan |
| NAACAM | National Association of Automobile Manufacturers of South Africa |
| NAAMSA | National Association of Automotive Component and Allied Manufacturers |
| OEM | Original Equipment Manufacturers |
| R&D | Research and Development |
| SAABC | South African Automotive Bench Marking Club |
| TMC | Toyota Motor Corporation |
| TNC | Transnational Company |
| TSA | Toyota South Africa |

# CHAPTER ONE
# Introduction

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## 1.1 Introduction

The stagnant performance of the South African automotive industry, led to a process of structural changes prior to 1995, aimed at enhancing global competitiveness, increasing value added production and increasing exports. The South African government therefore promoted structural changes to the domestic motor industry by opening the economy to international competition through a programme of tariff reduction and export orientation. The South African strategy of becoming a globally competitive automotive industry therefore focused on improving competeveness.

In support of the linkage between trade and competitiveness, were government policies, which guided Original Equipment Manufacturers (OEMs) industry in rationalizing their production facilities to produce products on a larger volume-scale to benefit from the export initiative. These policies were also applicable to the automotive component industry. These policies, scrapped all previous regulations on prescribed local content requirements, which in turn had a direct effect on the component industry.

In order for the automotive component industry to remain globally competitive, it is vitally important that local content is optimized. Therefore the research topic aims to establish the impact that optimization of local content will have on the potential growth and sustainability of the automotive component industry in KwaZulu-Natal (KZN).

This chapter presents an overview of the research topic and the motivation behind the study. The problem statement and research questions introduced from key focus areas are presented. The aim and objectives that the research seeks to address are clearly defined.

## 1.2 Problem Statement

South Africa has an automotive industry that is held in high esteem by the government and as such is supported by industrial policy.

In promoting the development of the industry, government policy resulted in the transformation of the industry into one that operates globally. In 2008 the South African government identified the automotive industry as a key economic growth sector, with the aim to increase vehicle production to 1.2 million units by 2020, while significantly increasing local content to a targeted 75%, in domestically assembled vehicles (Black 2011).

The South African automotive industry evolved through challenging times, which placed extreme pressure on automotive component manufacturers to remain globally competitive. Instability, together with global market dynamics resulted in automotive component manufacturers being highly dependent on foreign license agreements and imported technology.

It is imperative for the automotive component industry to focus on optimizing local content by improving technology and capabilities to remain competitive in the global automotive industry (Barnes 2009). In order to investigate the phenomenon of optimizing local content, the following research question needs to be answered: '**What impact will optimizing local content have on growth potential and sustainability of the automotive component sector in KwaZulu-Natal**' The answer to this question will indicate which factors have the greatest influence on the economical sustainability of the automotive component industry.

## 1.3 Motivation for the Study

The research problem is both timely and important. The Department of Trade and Industry (DTI), is in the process of finalizing the Automotive Production Development Programme (APDP), which will replace the Motor Industry Development Programme (MIDP) in 2013. The APDP incentivizes automotive component suppliers at all tier levels, to upgrade their technology and increase their capability to compete in the automotive value chain (Barnes & Black 2011).

On a broader level, this study can be used to glean a better understanding of the competitive forces at work in the automotive component industry, especially given the global nature of this industry and the fact that South Africa now truly forms part of it (AIDC 2011).

The areas identified in this study will enable stakeholders to focus on developing, technology, resources and capabilities to grow the competitiveness of the sector:

The Study will add economic value to the following stake holders:
OEM- The study will enable the OEM to:

- Identify areas of cost reduction
- Implement and control measures to improve efficiency and quality
- Enhance technological advancement of suppliers

Component manufacturers- The study will provide a guideline to:

- Developing resources and capabilities
- Enhancing technical skills
- Improve competitive advantage to international suppliers

Government- The study will:

- Identify areas of growth within the sector
- Enhance job creation
- Enhance multiplier growth in other sectors
- Identify opportunities for foreign direct investment

People of KZN- The study will:

- Identify employment opportunities and areas of skills development
- Contribute to social economic upliftment of KZN.

Outcomes of this study will provide automotive component suppliers, automotive assemblers (Toyota South Africa) and government with information to take necessary actions to stimulate further innovation to optimize local content to grow the automotive component industry and improve their global competitiveness.

## 1.4 Focus of the Study

KZN is host to one of South Africa's biggest automotive assemblers, Toyota South Africa (TSA), who assemble vehicles for both the domestic and export markets. There are 84 component manufacturers located in KZN, supplying components through the tier supplier chain (Barnes and Johnson 2004). These component suppliers are located in close proximity to the TSA assembly plant, to meet the just-in-time delivery system.

This study will focus on component manufacturers situated within a 100 km radius from the TSA assembly plant. The majority of the suppliers located in this area form part of the first and second tier suppliers, who supply components directly to the TSA assembly plant. For the purpose of this study, the main focus was on the first and second tier component suppliers, who are sole suppliers to the automotive industry. Third and fourth tier suppliers formed part of the study; however they are not sole suppliers to the automotive industry because they focus on other industries as well. The tiers suppliers of the automotive component industry are explained in detail in chapter two.

The study focused on the automotive component industry concerning the impact that the optimization of local content will have on potential growth and sustainability of the industry. The study sought to gain an in-depth understanding of the extent of localization, the challenges faced and economic impact it will have on the industry.

In order to further align the study with the key focal point of localization, all information considered as well as the component manufacturers chosen are those that focus on the light commercial vehicle (LCV) and passenger vehicle segment of the market in KZN.

## 1.5 Research Questions

The research aim can be addressed with the following research questions:

1. What are the challenges of optimizing local content in domestically assembled vehicles?
2. What economic impact will localization have on the automotive component sector?
3. What impact will optimizing local content have on the future growth and sustainability of the automotive component sector?
4. What impact will government intervention on localization have on the growth of the sector?

## 1.6 Objectives

The key objectives of this study are to:

- Investigate the extent of local content in the automotive component industry.

- Establish the challenges of optimising local content in domestically assembled vehicles.
- Analyse the economic impact of localisation on the growth potential of the automotive component industry in KZN.
- Establish the role of government in optimising local content in the automotive sector.

## 1.7 Proposed Methodology

The study used the quantitative approach to collect and analyse data. A questionnaire was administered to collect numerical data which was analyzed and processed into statistical form. The statistical data is presented in the form of figures and tables. The study was a cross sectional study, due to limited time frames, as all the data was collected at a single point in time over a 4-6 week period.

The research focused specifically on the automotive component manufacturers situated in KwaZulu-Natal. Non probability simple random sampling was used to collect data, ensuring that all component manufacturers in KZN had an equal probability of inclusion in the sample. The targeted respondents per company were middle to senior management, involved in the supply chain decision making process. There are 84 component manufacturers/suppliers situated in KZN and a sample of 65 companies will be targeted, which represents a 95% confidence level of the population.

The questionnaire together with a covering letter was hand delivered and or emailed to respondents. The questionnaire consists of 5 sections with a total of 26 questions. A 4 point Likert scale was used in order to minimize the error of tendency and obtain more specific results. The questions formulated in the questionnaire, validate the intended measurement of each objective. The data was recorded manually by the researcher. The Statistical Package for the Social Sciences (SPSS) was used to analyse the data. Descriptive statistics were used to summarize the data, which included frequencies, measure of central tendencies and measure of dispersion. Pie charts, bar graphs and tables have been used to present the data. The described research design and methodology is discussed in detail in chapter 3.

## 1.8 Chapter outline

Figure 1.1 outlines the flow of the chapters.

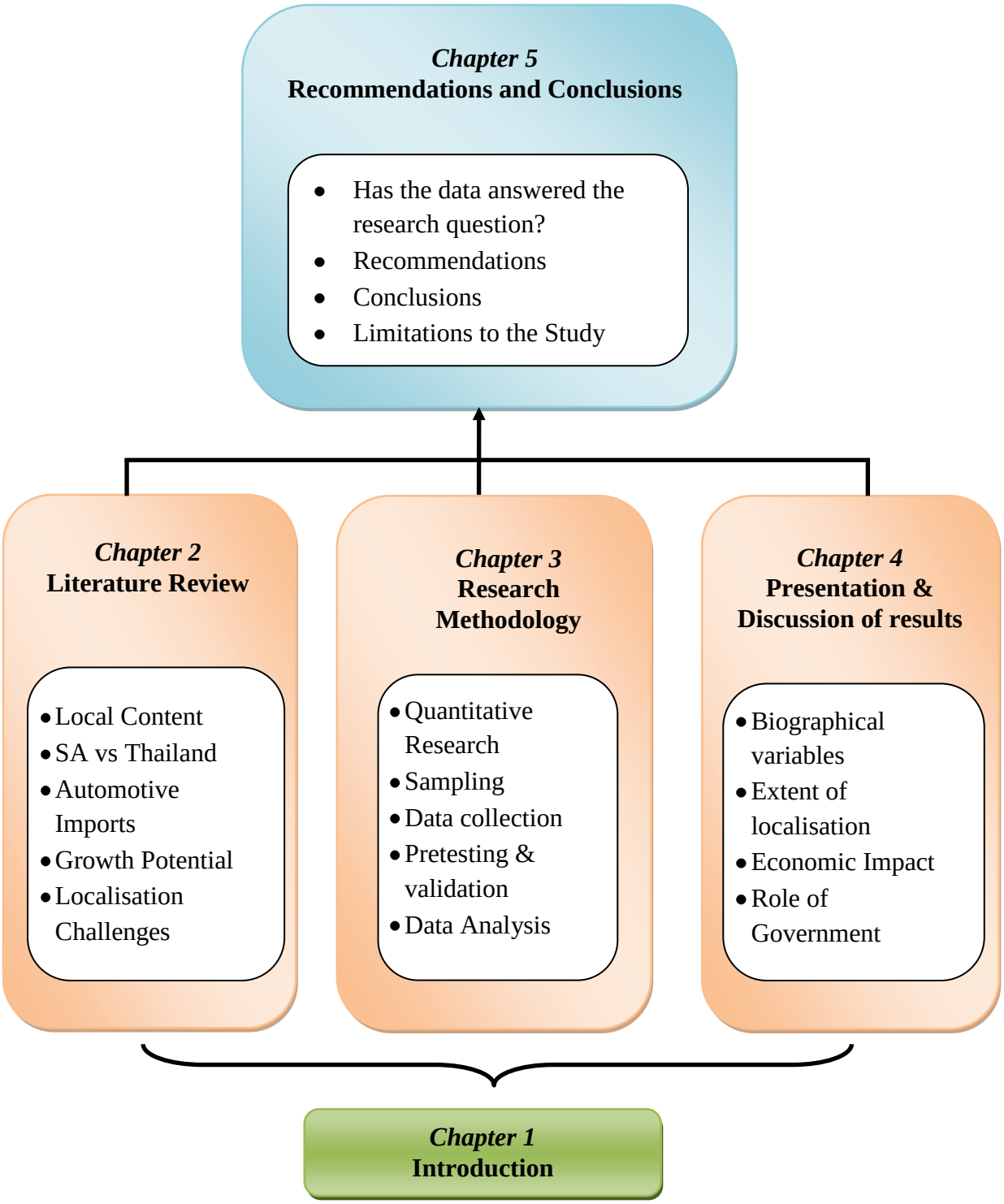


**Figure 1.1** Research strategy framework

Chapter one: This chapter introduces the research topic to the reader and details the format and sequence of the information presented in the study. The importance and relevance of the study is outlined.

Chapter two: The literature review is aimed at gaining an understanding of localization in the automotive industry and its impact on both the automotive assembler and the component manufacturer. The literature delves into the extent and challenges of localization and how this has affected the industry. The literature revolves around relevant strategic theories and models pertinent to the topic.

Chapter three: The research methodology employed for this study describes the paradigm in which the research was conducted. The method of data collection and the instrument used is also discussed, with strong emphasis on reliability and validity. Quantitative data was gathered using a questionnaire, to obtain responses from people in the automotive component supplier industry in KZN.

Chapter four: The presentation, interpretation and explanations of the findings of the results are made in this chapter. The data captured in the questionnaire was used to investigate the impact localization will have on the potential growth and sustainability of the automotive component suppliers. Therefore the quantitative data was analyzed using descriptive and inferential statistics. This chapter also discussed the findings of the results of each objective.

Chapter five: The study will conclude the research with an assessment of the extent to which the data has explored the problem statement and addressed the objectives, leading to recommendations on how to improve localization and increase competitiveness in the component industry.

## 1.9 Summary

The liberation of the South African automotive industry has evolved through challenging periods, which has affected the competitiveness of the automotive component manufacturers in South Africa.

In order for the automotive component industry to remain competitive, optimization of local content ought to be the key driver to future growth and sustainability of the industry.

Chapter one outlined the approach that this study has undertaken, highlighting the motivation and focus of the study. The key objectives, importance and benefit of the study were introduced to provide further understanding. The structure of the study was explained with brief notes on ever chapter content.

To identify the impact of optimization of local content in the automotive component industry, a literature review and quantitative research is presented in the following chapters. This is needed to gain understanding of the present state of the industry, analyse the inference and make recommendations.

# CHAPTER TWO

## Review of Literature

## "Optimising local content – the future growth of the automotive industry"

### 2.1 Introduction

The South African automotive industry is a major contributor to country's output of manufactured products making it a crucial cog in contributing to the country's economy. In promoting the development of the automotive industry, the South African government implemented a series of industry focused policies from 1961 to 1994, which established a significant degree of localised automotive component manufacture.

In 1995 the South African automotive industry was liberated by the introduction of the Motor Industry Development Plan (MIDP), which resulted in major transformation in the automotive component industry. These policy mechanisms brought about fundamental differences in the outward orientation of the automotive component industry that has drawn the industry into a global operating environment.

In 2008, the South African government identified the automotive industry as a key economic growth sector; with the aim to increase vehicle production to 1.2 million units by 2020, while significantly increasing local content at the same time.

This chapter reviews the literature by various academics, authors and industry leaders on optimising local content in the automotive component industry. In this study, OEM's will be referred to companies that manufacture or assemble vehicles and component manufacturers or suppliers will be referred to as companies that produce parts and accessories that are used for the manufacturing of vehicles.The definition of local content, as viewed by industry will be considered. The review seeks to determine the extent of localisation and the challenges of localisation within the automotive component industry. An overview of the component industry highlights the component manufacturer's relationship to the Original Equipment Manufacturers (OEM).

A comparative analysis of the automotive industry in SA and Thailand will ascertain SA global competitiveness.The future growth potential of the KwaZulu-Natal automotive component industry will be analysed with a focus on the financial growth, technological capabilities and upgrading the capacity of the supplier network.

## 2.2 Defining local content in terms of the automotive component industry

There are many views of the word localization and local content. The Oxford Dictionary explains the word localization as, "*to restrict something to a particular area*." According to Hollesen (2001), the purpose of local content is to force companies from other nations to employ local resources in their production processes. The benefit is to help protect domestic producers from the price advantage of companies based in other low wage countries.

According to Lorentzen (2005) local content can be defined in a number of ways, each with its own measurement difficulties and there are significant differences between the various measures. Barnes and black (2011), stated that the 'official' definition of local content is (vehicle wholesale price less import content), includes assembly cost and profit margins. With no change in the actual sourcing of components, higher prices and profits would mean a 'higher' level of local content.

Black (2009) stated that local content is difficult to measure; because each level of the automotive industry defines it differently. The OEM's, like Toyota South Africa, define local content, as local component purchases less all import content as percentage of ex-factory sales revenue and/or the average value of production, less average foreign exchange usage. Automotive component manufacturers define local content as, local component purchases less all import content as percentage of all component purchases (Kaggwa,Steyn and Pouris 2009).

## 2.3 Overview of the Automotive Component Industry in South Africa

The South African automotive sector accounts for 14 percent of South Africa's manufacturing exports, contributing 6.2 percent to the country's gross domestic product (GDP) in 2010. The industry employs some 28,000 people directly and 64,000 in the component industry (NAAMSA 2011).

Kaggwa et al (2009) stated that the South African automotive industry is strongly influenced by the OEM's; therefore the industry's structure and evolutionary path are closely aligned with OEM strategies in both domestic and global markets.

South Africa is home to seven OEM's, who are part of the global production network that produced, 295,394 passenger cars and 153,773 light commercial vehicles for domestic and export markets in 2010 (Business Monitor Report 2010). All seven OEM's have become partly or wholly owned subsidiaries of international leading motor manufacturers. This has contributed to the increase of foreign direct investment in the local industry. Through this transition, OEM's are fully integrated into international markets, which has brought with it huge challenges and opportunities to the local component manufacturers.

There are 370 component manufacturers. Figure 2.1 indicates the location of component manufacturers per province. Gauteng houses the majority of the component manufacturers (164), followed by KwaZulu-Natal (84), Eastern Cape (82), Western Cape (20) and North West (20). They cover all the commodity groupings for vehicle manufacture viz. electronics, body parts, interiors, exteriors, chassis and drive trains (AIDC 2011).

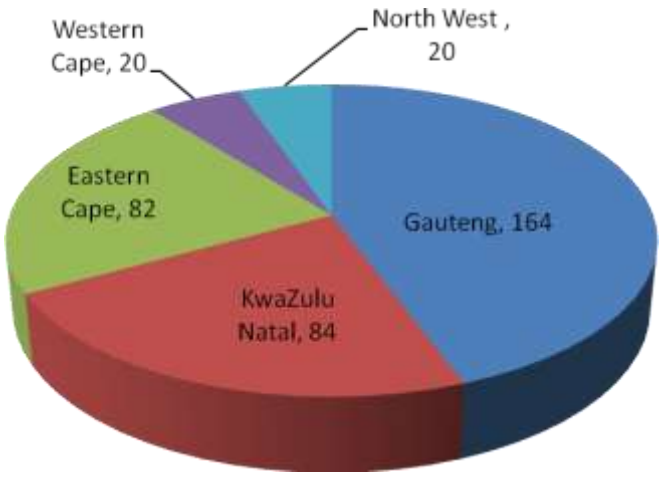


**Figure 2.1** Number of automotive component manufacturers per province
**Adapted from:** National Association of Automotive Component and Allied Manufacturers (NAACAM) 2011.

The National Association of Automotive Component and Allied Manufacturers (NAACAM) represent the interests of automotive component manufacturers in South Africa and provide a forum through which to formulate policies and lobbies for the benefit of the industry as a whole.

The South African automotive component industry is a mature and multi-tiered supplier base to the OEMs. South Africa's component export capability has increased since 1995, with component exports increasing from R3,3 billion to a value of R44,1 billion in 2008 (NAAMSA 2011). Black (2003) identifies four tiers of suppliers in the component manufacturing segment of the automotive industry.

The first tier suppliers are generally assumed to be supplying components directly to the OEM production facility. They are often involved in sub assembly and produce components which are core to the vehicles (engine, body sections, and electronic systems). These firms work in closer partnership with OEM's and operate in secure long term contracts. First tier suppliers are generally owned subsidiaries of multinational corporations (due to the nature of global supply contracts enforced by the OEM's), while a handful remain SA owned operations.

Second tier firms generally supply either the OEM directly or supply critical components to first tier firms. They are either producers of scale or involve specialist higher value activities that are needed in automotive production. The majority of second tier suppliers to the automotive industry are SA owned operations, which produce a full range of components for the domestic and international markets (Comrie 2002).

Third tier firms often supply second or first tier suppliers rather than OEM's directly. It is common for them to be producing lower value and lower volume products using technology and processes that are not necessarily unique. They are often subject to much shorter term contract arrangements. The fourth tier is often referred to as the aftermarket fitment suppliers, as they are not directly linked to the vehicle manufacturing supply chain (Ellis 2008).

According to Barnes & Johnson (2004), in 2003, 10 firms were first tier suppliers, 20 were second and third tier and 10 supplied aftermarket, while a range of other suppliers were not exclusive automotive focused, but supplied into variety of industries.

Figure 2.2 shows the product profile of these firms.

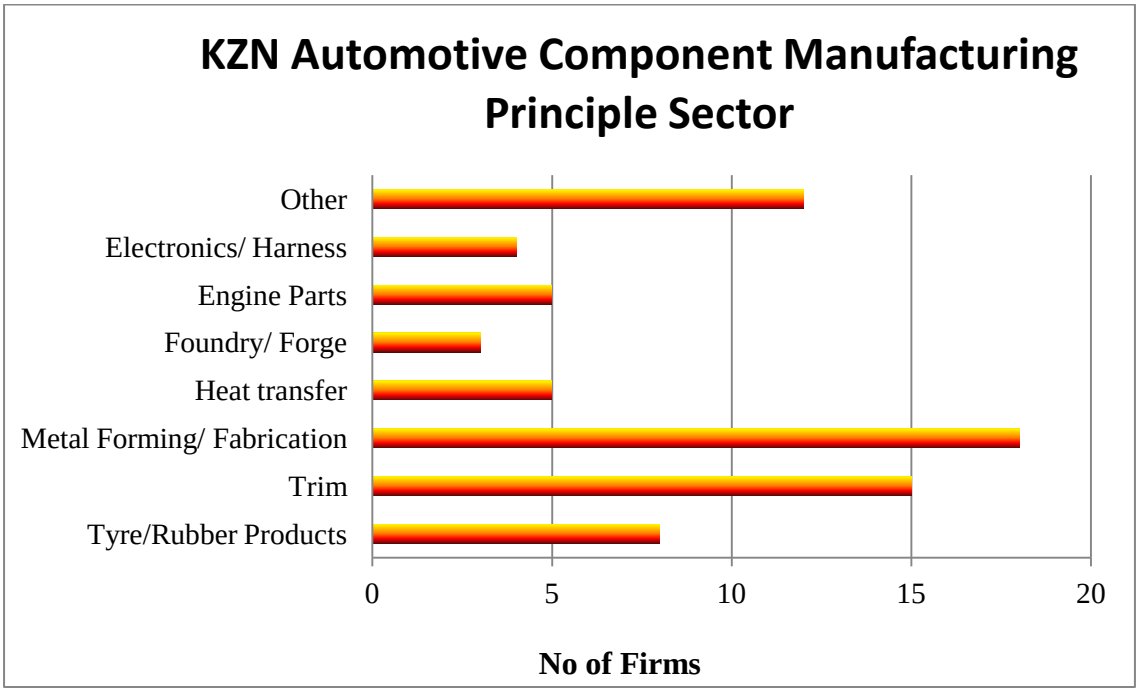


**Figure 2.2 Profile of KZN Component Producers by Product Type**

**Source**: Barnes, J, & Johnson, J. 2004. Sectoral Overview of the Automotive Industry in the eThekwini Municipality and broader KwaZulu Natal. Unpublished research note produced for eThekwini Municipality. B & M Analysts, Durban.

The AIDC (2010) quarterly report pointed out that some second and third tier suppliers were not exclusive automotive component firms and produce goods for other sectors but count the automotive sector as a significant customer. The component manufacturers in KZN subsequently moved rapidly towards greater specialisation in production and improving performance levels in order to secure export contracts into Toyota's global supply system.

According to Barnes (2010), 84 component manufacturers located in KZN are in close proximity to the Toyota production plant in Prospecton. The regional automotive components industry is concentrated in five distinct locations, the Southern Industrial Basin, Pinetown, Durban Central, Pietermaritzburg and other (Stanger, Ladysmith and Isithebe).

## 2.4 Introduction of local content to the automotive industry in South Africa

South Africa has seven light vehicle assemblers with a total production capacity of 650 000 units in 2010 (NAAMSA 2011). The automotive assembly and component industry is one of South Africa's leading manufacturers contributing 8.3 % to the gross domestic profit in 2009. In South Africa, the introduction of a series of local content programmes from 1961 to 1989 led to increased levels of local content from 15% to 66% in domestically assembled vehicles because local content was measured in mass rather than value (NAAMSA 2007). Table 2.1 indicates the development of the automotive industry policies for local content measurement.

| Policy Phase | Year of Inception | Local content measured by: |
|---|---|---|
| **I** | 1961 | Weight |
| **II** | 1970 | Weight |
| **III** | 1976 | Weight |
| **IV** | 1981 | Weight |
| **V** | 1987 | Weight |
| **VI** | 1989 | Value |
| **VI (MIDP)** | 1995 | No local content requirement |
| **MIDP Phase II** | 1999-2012 | No local content requirement |

**Table 2.1:** Development of the Automotive Industry Policies

**Source**: Damoense, M. Y., Simon, A. 2004. An analysis of the impact of the first phase of South Africa's motor industry development programme (MIDP), 1995-2000. Development South Africa, 21 (2), 251-269.

Between 1961 and 1987, the government introduced the five phase programme, which focused on continued domestic market protection and a variety of incentives to increase local content in mass (Gelb 2004). The objective of the programme was to increase the local content in mass from 15% to 40% in phase 1 and from 45% to 55% in phase 2 and to 66% in phase 3 (ITAC 1998). Lamprecht (2004) elaborated that local contents were calculated by defining local components to the total mass of the vehicle; hence the OEM's focused on heaviest automotive components first.

The first tentative steps to liberalize the sector began with the introduction of Phase VI of the local content programme, which marked a significant change in the direction, as local content was now to be measured by value rather than mass. According to Black and Bhanisi (2006) phase VI, was intended to encourage both local content and specialisation, however it failed to address the major factor impacting on the scale of production in the components sector and proliferation of makes and models in the domestic market, which was one of the major reasons for the component sector being uncompetitive. The automotive industry was a supremely inefficient sector with tariffs as high as 115% of imports, little investment, variable quality and outdated technology (NAAMSA 2007).

In September 1995, Government introduced the MIDP, which was a policy framework designed to support the growth of the automotive industry under a liberalised trade environment and to overcome the shortfalls of the series of local content programmes (Kaggwa, Steyn & Pouris 2007). Introduction of the MIDP resulted in a major transformation in the automotive component industry. This liberation was led by changes, such as the removal of all local content provisions, reduced tariffs and import – export complementation at Original Equipment Manufacturers (OEM) level (Damoense & Simon 2004).

The import-export complementation scheme, saw import duties phase down from 75% to 40 % for light vehicles and from 50% to 30 % for components in 2003 (Black & Bhanisi 2006). This brought about an export focused outward orientation of the industry. This was enforced through a number of policy mechanisms which have drawn the industry into a global operating environment. Barnes (2010) stated that South African based OEM's ensured dominance due to changes such as reduction of import tariffs on automotive components and the removal of minimum local content requirements for South African assembled vehicles. Kaggwa et al (2007) summarise the intentions of the MIDP in a static uni-directional model as indicated in Figure 2.3.

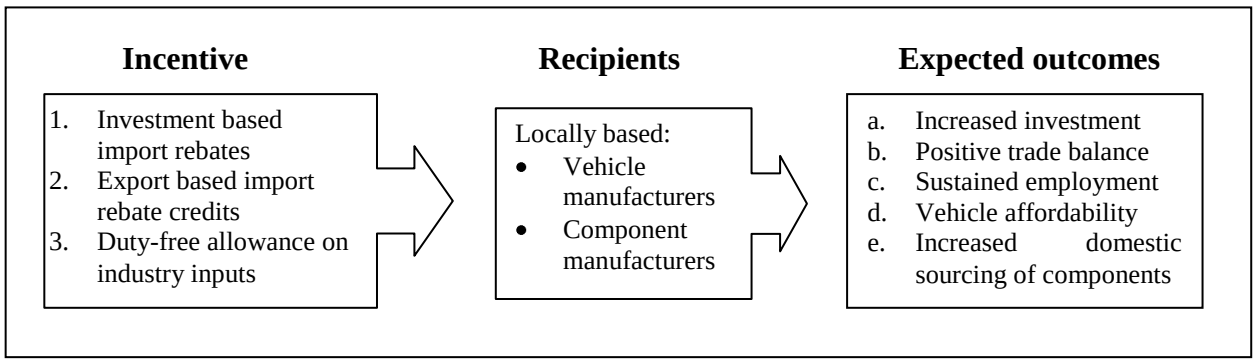


**Figure 2.3 Static Uni-directional MIDP incentive model**
**Source**: Kaggwa, M., Pouris, A., Steyn, JL., 2007, Sustaining automotive industry growth in South Africa: A review of the first five years of the Motor Industry Development Programme, University of Pretoria, Vol 22.

The main objective of the MIDP was to increase the volume and scale of production through a greater level of specialization in terms of both vehicle models and components. With the introduction of the MIDP, the automotive component sector came under increasing pressure from imports as minimum local content requirements were abolished and manufacturers of light vehicles were entitled to duty free allowances for the importation of original equipment components (Lamprecht 2004). Manufacturers were offered the full value of locally contributed portions of exports back in form of import-duty rebate credit certificates (IRCC). The IRCCs was then used to import components and offset the cost of import duties against the value of the IRCCs (Barnes & Morris 2008). Firms were therefore encouraged to rapidly develop exports and this meant a substantial reorientation of existing production and the necessity to re-position themselves in the international value chain (Damoense & Simon 2004)

South African OEM's wanted their component suppliers to be integrated globally and therefore, have equity relationships with international firms, which resulted in local firms improving their technology and capabilities to compete globally. Table 2.2 illustrates the ownership and status technology used by South African based component manufacturers supplying South African based assemblers.

| Category | 1997 | 2000 | 2003 |
|---|---|---|---|
| Wholly owned subsidiaries of Transnational Company(TNC)automotive component manufacturers | 26% | 31.7% | 37.5% |
| Joint ventures between SA companies and TNC automotive component firms | 18.5% | 26% | 32.5% |
| SA companies with technology agreements with TNC automotive component firms | 29.8% | 24.3% | 20% |
| SA companies with South African technologies | 25.8% | 18% | 10% |

**Table 2.2 Ownership and status technology used by SA based component manufacturers supplying SA based assemblers (percentage of OEM purchase value)**

**Source:** Barnes, J., & Morris, M. 2008. Staying Alive in the Global Automotive industry: What can developing Economies Learn from South Africa about linking into Global Automotive Value Chains? *European Journal of Development Research*, Vol. 20, No. 1, pp.31-55.

South African component manufacturers previously had licence agreements with multinationals, manufacturing products according to their design specifications but these components could only be sold locally. This prevented the local manufacturer from competing in the global market, as well as obtaining global scale of economies in their production. South African based assemblers wanted the domestic suppliers to be wholly owned subsidiaries or joint ventures of foreign TNCs (Barnes and Morris 2008). Table 2.2 illustrates that wholly owned subsidiary operations of TNCs in South Africa in 2003 accounted for approximately 37.5 % of component sales into domestic OEMS, rising from 26% in 1997. Purchasing from Joint Venture operations was expected to increase from 18.5% in 1997 to 32.5% in 2003, almost double the 1997 level (Damoense & Simon 2004).

The MIDP influenced structural changes of ownership with respect to OEM's and suppliers in the South African automotive value chain. The MIDP impacted the process of transformation from a protected, inefficient industry to a highly outward orientated export industry (NAAMSA 2011). The transformation was supported by substantial growth in exports and an inflow of foreign direct investment and new technology, together with improvements in productivity and economies of scale (Black 2009).

South African technology is increasingly unable to inform new product development processes, due to lead sourcing and global technical standards settings from source design companies in Japan and elsewhere. This did not mean the end of local manufacturing; however South Africa is driven by rigid and detailed externally generated technical specifications, which have to be met by local producers. Local firm's research and development (R&D) capabilities which were intended to customise product lines to South African Standards, were refocused to process re-engineering and technical specifications to meet international standards.

NAACAM (2011), stated that in 2013 the new Automotive Production and Development Programme (APDP) will commence, which is designed to increase global competitiveness by expanding manufacturing capabilities within South Africa. The APDP offers incentives to up skill employees, increase technical expertise and to invest in technology, research and development. Ellis (2008) stated that the key focus of the APDP is to encourage local assembly that have economies of scale and increase the depth of local component manufacturing to international output levels. The ultimate aim is to achieve ambitious targets for annual vehicle production of 1.2 million units by 2020.

## 2.5 A Comparative analysis of the automotive component industry in South Africa and Thailand

According to Barnes, Comrie, & Hartogh, (2009), the automotive plants in South Africa and Thailand share a number of attributes and have a long history of government support. The automotive industries in both countries have developed under high levels of protection, which include high tariffs and local content programmes. Busser, (2008) stated that, "high levels of protection encouraged diversified development but led to high cost production structures, exacerbated by the large number of makes and models being assembled at low volumes". This created problems for component manufacturers running small production runs, resulting in high costs.

Cuyvers (1996) highlighted that the phase of protection and import substitution, was followed by strong state support for exports and rapid structural change towards export production.

This was accompanied by an influx of foreign direct investment in both countries; hence the vehicle assembly and component manufacturing sectors are dominated by foreign firms, with Toyota being the largest producer in both markets. The automotive sectors in Thailand and South Africa hold dominant positions within their respective regions. While Thailand is centrally located in a large and dynamic market region, the countries on South Africa's periphery are poor and comprise of a small market (Kohpaiboon 2009).

According to Ernst & Young (2009), the development of the Thai industry has been in line with the dynamic growth of the Thai economy. Production of cars and commercial vehicles reached 1.39 million units in 2008, more than double that of South Africa. Ernst & Young (2009) emphasized that the development of the Thai industry has been more recent but also more rapid in line with the dynamic growth of the Thai economy. Cuyvers (1996) stated that significant industrialization only got under way in the early 1960's but by 2007 a total of 14 firms, predominantly foreign-owned Japanese and American operations, had installed capacity of 1.7 million units.

Thailand's automotive industry is highly concentrated on a narrow market segment with a range of light commercial vehicles as a result of the Thai government's tax regime for vehicle ownership. This has created domestic scale of economies for certain products, which in turn permitted the development of vehicle technologies and increased local content in Thai assembled vehicles (Madani & Mas-Guix (2011) Nadvi (2008) emphasized the fact that the growth of Thai automotive industry is in part fuelled by the size and limited segmentation in its domestic market, but also its close proximity to major developing economies.

According to Flatters, (2002), like South Africa, Thailand made use of high tariffs and local content requirements as well as trade balancing mechanisms to grow the automotive industry. The Thai government placed a limit on the number of assembly plants, as early as 1969. Local content requirement was introduced by the Ministry of Industry from 1974 and in the 1980's scores were assigned to various components based on government's perception of their developmental importance rather than their value, as this was only approximately 35-40% of ex-factory cost (Cuyvers 1996).

The Thai Automotive Industry Association (2005), highlighted that there were approximately 650 first tier suppliers and over 1,600 second tier suppliers in the Thai auto component industry, with 53% of the first tier suppliers being either majority of fully Thai owned. The vehicle producers in Thailand presently source 90% of the Bt 60 billion worth of its automotive components requirements locally. Nevertheless, the extent of localization is relatively high in Thailand.

Lorentzen (2005) stated that in 1998 OEM's were executing plans to increase local content beyond the minimum requirements; however the Thai government legislated the removal of local content requirements and promoted export in the form of tax and import duty exemptions. Madani & Mas-Guix (2011) further stated that with the initiation of export incentives, the Thai automotive industry became highly export orientated, with exports reaching 152,800 units in 2000 and 838,600 units in 2008.

Due to the high level of localization in the Thai automotive industry, the import value of parts declined from $9 million dollars per thousand locally assembled vehicles to 2.6 million in 2007. Vehicle exports accounted for 41% of production, between 2000 -2008 and exports of components increased from $400 million in 1990 to $4 billion in 2007 (AIEC 2011).

Madani & Mas-Guix (2011) argued that South Africa has followed a more liberal strategy, as tariffs were lowered gradually, declining from 115% in 1995 to 25% in 2012. The reduction in tariffs, coupled with a government incentive that enabled exporters to rebate import duties on cars and components, led to a rapid increase of the vehicle market taken up by imports.

Busser, (2008) stated that Thailand has secured for itself a more advantageous position within the global automotive industry in relation to South Africa. This is a result of a favorable geographic position in relation to the locational trajectory of the global industry, more rapid economic growth, and the development of a low cost manufacturing environment and a set of policy interventions which placed production ahead of consumption interests, thereby making itself a more attractive investment location. Thai policy strongly favours domestic assembly above importation especially concerning light commercial vehicles (LCV's), Table 2.3 indicates the taxation environment in Thailand strongly favours LCV production over passenger vehicle production, whilst also stimulating demand.

| | One ton LCV (private use) | | Passenger Vehicle (2000-2500cc) | |
|---|---|---|---|---|
| | **Thailand** | **SA** | **Thailand** | **SA** |
| OEM selling price | 200,000 | 200,000 | 200,000 | 200,000 |
| CBU import tariff | 40% | 29% | 80% | 29% |
| Excise tax | 3% | 5.39% import | 35% | 5.39% import |
| VAT | 7.5% | 14% | 7% | 14% |
| Interior tax | 0.3% | 0% | 3.5% | 0% |
| **Local production vehicle market price(all taxes included)** | **221,081** | **237,234** | **299,012** | **237,234** |
| **Imported vehicle market price (tariff + taxes included)** | **309,514** | **309,973** | **538,221** | **309,973** |

**Table 2.3 Automotive demand side taxes in Thailand relative to South Africa- 2008 (Rands)**

**Source:** Barnes, J & Black, A. 2011, Multinational strategy, industrial policy and local capability: A comparison of automotive industry development in South Africa and Thailand, *Unpublished report*, May 2011

From table 2.3, it can be concluded that for one tonne LCVs for private consumption, Thai pricing is 6.8% lower than in South Africa. At the same time LCV producers are protected by 40% tariffs as opposed to South Africa's 31%, thereby providing higher levels of protection in the domestic markets. With regards to passenger vehicles, local production is strongly favoured relative to imports in the Thai market with 80% import tariffs, increasing the price of imported vehicles. South Africa's pricing is consistent between the two types of vehicles explored, with moderate levels of advantage secured for local assemblers over importers.

The fundamental difference between the Thai automotive industry development trend and that of South Africa is the stage of industry growth when the liberalisation process commenced. Thailand had already achieved a high level of localisation of its automotive industry compared to South Africa before embarking on the liberalisation process (Nadvi 2008). The combination of market size, policy and cost competitiveness; has impacted on the nature of expansion by international firms. Venter, 2008) emphasized that although both countries have experienced rapid export expansion, Thailand is more of a genuine export platform hence export growth has far exceeded the expansion of imports and Thailand runs a large automotive trade surplus.

Madani & Mas-Guix (2011) highlighted that in South Africa, investment in exports has been partly driven by the desire to earn import rebate credits. In Thailand, global OEM's established joint ventures with domestic companies as a means to further the localisation process. In the case of South Africa, global OEMs producing in the country have maintained their autonomy even buying out the local minority shareholders. The investment offer in South Africa is therefore subject to different dynamics, particularly the low linkages between global and local manufacturers in the country (Barnes & Black 2011).

### 2.6 Imports of Automotive Components into South Africa

The strong focus on the sourcing of components in the domestic market and the development of the local component supplier industry is important because it reduces the risks associated with exchange rates fluctuations. The OEM's perceive increasing local sourcing levels in South African manufactured vehicles as a prerequisite for establishing a more sustainable productive base (AIEC 2011). Table 2.4 highlights the components imported into South Africa from country of origin.

| COUNTRY | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|
| TOTAL (R billion) | 35.3 | 40.5 | 48.1 | 30.0 | 37.9 |
| Germany | 33% | 30% | 36% | 35% | 38% |
| Japan | 27% | 30% | 25% | 22% | 22% |
| Thailand | 9% | 9% | 9% | 11% | 9% |
| Brazil | 8% | 7% | 7% | 8% | 6% |
| Spain | 4% | 3% | 2% | 3% | 5% |
| Sweden | 1% | 1% | 1% | 1% | 3% |
| Czech Rep | 1% | 1% | 1% | 2% | 3% |
| UK | 3% | 3% | 4% | 3% | 3% |
| USA | 3% | 3% | 3% | 3% | 2% |
| Australia | 2% | 2% | 2% | 2% | 2% |
| Other | 9% | 11% | 10% | 10% | 7% |

**Table 2.4** Components imported into South Africa from country of origin

**Source**: Automotive Industry Export Council (AIEC) 2011.

A large portion of the automotive imports to South Africa are comprised of original equipment components, which are then exported as completely built up units (CBU's), after significant value adding processes. Original equipment imports by the OEM's have amounted to R 37.9 billion in 2010 (AIEC 2011). It is evident from Table 2.4 that Germany is the principle country of origin for imported components into South Africa, contributing a total value of 38% of South Africa's total component imports by value in 2010. Imports from Japan have decreased from 27% in 2006 to 22% in 2010. Imports from Thailand have remained constant from 2006 to 2010 at 9% (AIEC 2011).

According to Black (2009), the total automotive imports increased from R18.0 billion in 1996 to R73.3 billion in 2005. The value of imported vehicles also increased sharply; from R2.8 billion in 1996 to R28.3 billion in 2005, accounting for nearly 40 % of the domestic market. However, imports of components are considerably larger although the growth rate has been less dramatic because they started from a higher base. Automotive products constitute a large and growing segment of South Africa's imports, exceeding 18 % of total merchandise imports by 2005. As a result of growing component and vehicle imports, the overall automotive trade deficit has widened dramatically, reaching R27.7 billion in 2005 (Venter, 2008). Table 2.5 reveals the increasing trend in the import of aftermarket replacement parts to compliment the products not manufactured in the domestic market and more particularly to service the rapidly increasing imported vehicle ownership for which most parts are imported.

| **Parts Category** | **2006** | **2007** | **2008** | **2009** | **2010** |
|---|---|---|---|---|---|
| Tyres | 1 448 | 2 037 | 2 182 | 1 961 | 2 900 |
| Engine Parts | 1 770 | 2 046 | 2 159 | 2 393 | 2 549 |
| Automotive tooling | 2 269 | 2 359 | 2 743 | 2 167 | 1 596 |
| Leather and Leather parts | 1 027 | 1 140 | 1 565 | 1 018 | 1 139 |
| Transmission Shafts/Cranks | 374 | 491 | 1 556 | 1 116 | 1 076 |
| Gauges / Instrument parts | 761 | 875 | 2 641 | 978 | 984 |
| Catalytic converters | 452 | 418 | 696 | 632 | 903 |
| Lighting equipment/ parts | 473 | 552 | 662 | 588 | 746 |
| Brake parts | 750 | 1 059 | 860 | 730 | 774 |
| Engines | 402 | 702 | 1 682 | 816 | 705 |
| Other | 10 059 | 12 031 | 12 903 | 13 557 | 13 946 |
| **TOTAL** | **19 785** | **23 710** | **29 649** | **25 956** | **27 318** |

**Table 2.5** Top 10 replacement parts imported (R million)

**Source**: Automotive Industry Export Council (AIEC) 2011.

The growth of imports of cheaper products, mainly from China, has exacerbated this trend. Imports in 2010 increased by 27% from 2009 and were also 11% higher than 2008 (AIEC 2011). It is evident from Table 2.5 that in terms of component imports, tyres and engine parts constitute the most significant proportion by value, followed by automotive tooling and leather parts. Automotive tooling has declined from R 2,269 million in 2006 to R 1,596 million in 2010. By contrast tyre and engine parts have significant growth in import values between 2006 and 2010 (AIEC, 2011).

To achieve higher production volumes from a much smaller range of products, automakers had to rationalize the vehicles and components manufactured. The automotive industry had to rely on an increasing number of imports to fill domestic supply gaps. The automotive industry's dependence on imported tooling and designs, technologically sophisticated plant and machinery and high value automotive components contributes to a continuing outflow of foreign exchange (NAACAM, 2011). Table 2.6 illustrates the trade balance deficit from 2005 to 2010.

| Year | Imports (R billion) | Exports (R billion) | Trade Balance (R billion) |
|---|---|---|---|
| **2005** | 72.5 | 45.3 | (27.2) |
| **2006** | 88.5 | 54.7 | (33.8) |
| **2007** | 102.2 | 67.6 | (34.6) |
| **2008** | 108.9 | 94.2 | (14.7) |
| **2009** | 79.9 | 61.0 | (18.9) |
| **2010** | 100.2 | 69.5 | (30.7) |

**Table 2.6 Automotive Industry trade Balance**

**Source**: Automotive Industry Export Council (AIEC). 2011. Automotive Export Manual 2011 - South Africa. Pretoria: AIEC

The South African automotive industry's trade deficit widened to R 30.7 billion in 2010 compared to the R18.9 billion in 2009. The overall picture in respect of the domestic automotive industry's trade balance under the MIDP reflects that exports have increased very rapidly but that imports have expanded more rapidly (AIEC, 2011). Automotive components remained the key driver behind the automotive industry's trade balance until 2007.

In 2008, the vehicle export value exceeded the automotive component export value for the first time and this trend continued in 2010. The industry's reliance on high value automotive components contributes to the large outflow of foreign exchange. The importation of replacements parts has increased in recent years to support the increased vehicle imports (NAAMSA 2011).

## 2.7 Extent of Localisation in the Automotive Industry in South Africa

Damoense & Simon (2004) stated that the automotive domestic market expanded rapidly reaching 120 000 vehicles in 1960, which lead to a large number of assembly plants being established, however the level of local content was only 20%. By 1971, the net local content rose rapidly to 51% by mass. Flatters (2002) highlighted that this rapid augmentation was accompanied by proliferation of assemblers and also by the development of a low volume components industry leaning towards the production of heavier components such as body pressings.

Black (2001), stated that the series of local content programmes introduced in South Africa, was inconsistent, which was directly responsible for the development of a fragmented and non-competitive industry. Franse (2006) stated that under the MIDP, protection of the component sector has been drastically reduced, resulting in local content requirements being abolished and import duties continuing to decline. Kaggwa et al (2007), stated that changes in local content usually occurs when new vehicle models are introduced and it is important to determine whether the new models have lower levels of local content than the discontinued vehicles. The local content in each model produced varies by model and by OEM.

Table 2.7 below illustrates the composition of a vehicle with the percentage of local components versus the percentage of imported components as a percentage of total material cost used in the complete assembly of a vehicle in the domestic market.

| Component | % of Imported components | % of Local components | % Total components |
|---|---|---|---|
| **Electrical/ Electronic**<br>Harnesses<br>Starter Motors<br>Alternators<br>Wiper systems<br>HVAC | 14% | 5% | 19% |
| **Body**<br>Bonnets<br>Boot lids<br>Side frames<br>Doors | 9% | 6% | 15% |
| **Chassis & Drive-train**<br>Axles<br>Differentials<br>Drive Train<br>Brakes | 19% | 14% | 33% |
| **Interior**<br>Cockpit<br>Seats<br>Door Panels<br>Carpet | 16% | 7% | 23% |
| **Exterior**<br>Glass<br>Paint<br>Bumpers<br>Mirrors | 7% | 3% | 10% |
| **Total** | 65% | 35% | 100% |

**Table 2.7 Current Local Content levels in South African Automotive Industry**

**Source**: NAAMSA. 2011. *NAAMSA Annual Report 2009/2010*. National Association of Automobile Manufacturers of South Africa, Pretoria.

Table 2.7 implies that of the 5 major component categories that make up the total vehicle assembly, only 35% local components are used while 65% imported components are used. Black and Bhanisi (2006) argued that the foreign direct investment by first tier suppliers is there to engage in the assembly of imported knock down units, or draw on the domestic supplier base. Hence it is clearly evident that there is a decline in local content in domestically assembled vehicles due to the high percentage of imported components being used.

Kahn (1987) stated that the dependence on foreign inputs reflects the assembly or 'system integrator' character of many foreign owned supplier operations which partly results from the limited time the companies have been operating in South Africa. On average the vehicles are produced in volumes of 50,000 units per annum or less, which does not justify investment in component manufacturing in high volumes.

"In the South African component sector, affiliates of multinationals imported 53.7 per cent of their requirements compared to only 29.4 per cent by local firms" (SAABC 2006). Cooper & Leverick (1998) stated that the foreign direct investment and joint ventures in first tier component manufacturing companies focus on high technology investments. In most cases these firms are 'systems integrators' were they operate as just in time sub assemblers of imported components using technologically advanced assembly jigs and testing equipment. These companies do not engage in any materials conversion processes and cannot be regarded as manufacturers (Barnes and Black 2011).

Lorentzen, Robbins & Barnes (2004), stated that Toyota SA (TSA) sought to draw South African suppliers into its global supply networks. In the 1990's, TSA produced 80,000 units over seven models for the South African market only. TSA had 154 suppliers. By 2009, production was raised to over 200,000 units, of which 65% was for export to Europe. Franse (2006) highlighted that the supplier base grew to 78 suppliers, 82% of which will be what TSA refers to as global sourcing partners, in that they are linked into global supply arrangements, for the models produced in their region. Furlonger (2007) emphasized that the competitive advantage growth of the component industry was evident by the increase of locally content of up to 70% in 2006.

The availability and supply of locally produced components remained relatively satisfactory during 2010, due to industrial action and quality issues at first and second tier component manufacturers, which pose as a major challenge to the component manufacturing industry. Availability of capital risk increased due to the unexpected sharp increase in demand by vehicle producers. Automotive component manufacturers are continuously pressurised, due to the relentless focus on global cost competitiveness and vehicle manufacturers cost reduction targets (AIDC 2010).

## 2.8 Optimising local content in the automotive component industry in South Africa

Comrie (2002) stated that SA automotive industry has historically depended heavily on imported technology. The locally owned vehicle manufacturers and first tier component producers operated under license from European, Japanese or American firms, which involved royalty costs and imposed restrictions on exports. Barnes (2010) argued that in spite of these disadvantages, many firms considered licensing to be the most cost effective way to obtain up to date technology. He further argued that by no means were local firms lacking in capacity, however they spent little on research and development (R&D) and were highly dependent on foreign licenses.

Cokayne (2011c) stated that, although majority of manufacturing value lies in the components industry, as opposed to vehicle assembly (roughly a 70:30 split), it is the OEMs that determine the scale and scope of automotive component activity. Black (2009) stated that individual vehicle assembly plants no longer source their components from over 2,000 suppliers as they did in the 1980s. Now OEMs have about 200 first-tier suppliers, who have the responsibility to transfer the sourcing to a large group of second tier suppliers for the production of the particular modules or sub-assemblies.

Fourcade & Midler (2004) stated that OEMs have moved towards modular production where component manufacturers supply complete modules rather than individual components. Vehicle assembly plants have transferred the sourcing responsibility to first-tier suppliers who have become systems integrators rather than simply component manufacturers. This resulted in reduction of fixed overhead costs for OEM's, but increased overheads and the need for scale of economies at component manufacturers Narula & Dunning (2000).

Barnes (2010) emphasized that whilst the South African automotive industry is deemed to be strategically vulnerable by a number of leading academics, the national government has set substantial growth targets for the sector through to 2020, to increase local content by value to 75% in achieving the 1.2 million vehicle target. Kaggwa et al (2009), argued that the key competitiveness challenge confronting the South African automotive components industry therefore relates to whether the rates of improvement evident over the last few years, as well as absolute performance levels, are sufficient?

Robbins (2007), stated that, TSA, realised the cost and supply chain benefits of sourcing their components in SA, hence they initiated a programme to seek opportunities to increase local content by pooling their volumes of certain components, thereby achieving better economies of scale. This resulted in OEM Purchasing Council being established in 2009, were the council looks at opportunities to identify new local content and to substitute imported components.

Black (2011) stated that as a result of the OEM Purchasing Council, TSA is transferring design and development responsibilities of certain vehicle parts to component manufacturers. This will result in substantial reduction in new product development cost, shorter design lead times and maximisation of global marketing and production presence.

Lorentzen & Barnes (2004) emphasized that upgrading the South African components industry relies on individual and collective technological capabilities. According to Pitot (2011), the average local content in vehicles produced in SA could be increased to 50 percent without any major technological challenges, as the average local content was estimated between 35 and 40 %, but has not changed over the years. He further stated that increasing local content in South African made vehicles is important, as it improves the South African trade balance and provides additional volumes to local component manufacturers, which enables the component manufacturers to become more competitive to the advantage of the consumer and will bring new technology to SA, which will promote other sectors (Engineering News, 2011).

## 2.9 Growth Potential of KwaZulu-Natal Automotive Component Industry

Kaggwa et al (2009), stated that Governments are driven by the desire to increase local contents of vehicles assembled in their countries, by providing a powerful driving force, which will establish a significant degree to localised automotive component manufacturing. These locally produced automotive components, in many cases, substituted progressively more of the imported automotive components

According to Black (2009), a total of 347,888 vehicles would be produced in KZN in 2020. Toyota SA has installed production capacity of 220,000 units. An additional 130,000 units of

capacity will be required.

Given the low levels of local content in South African assembled vehicles, the growth in vehicle production volumes is likely to substantially grow importing levels of automotive components. The magnitude of this growth reveals the extent of the industry's localization opportunities. Barnes (2010) argues that the growth potential of the KwaZulu-Natal automotive industry to 2020 is clear, although the SA industry's growth potential will not be realized unless substantial progress is made in respect of both demand and supply-side issues impacting on its performance.

According NAACAM (2011) statistics, KwaZulu-Natal imported approximately R10.7 billion worth of automotive components in 2007, with this projected to rise to R16.3 billion in 2012 and R26 billion in 2020. The magnitude of this growth reveals the extent of the industry's localization opportunities.

If the automotive components industry in KZN is able to improve its competitiveness and expand its technical capabilities, there is the potential to secure the production of a significant portion of local products. Therefore, the growth potential of the KZN automotive industry to 2020 is clear, if 25% of imports are re-located to the province by 2020, the automotive component production sales would increase from R11.6 billion to R18.1 billion; an increase of R6.5 billion (Barnes 2010).

According to Cokayne (2011a), the OEM Purchasing Council initiated a joint localization feasibility study, aimed at broadening and deepening local content. The desired benefits of this study were to increase local content volumes to achieve economies of scale and use the local content as leverage against a volatile exchange rate, reduce foreign exchange usage and introduce new technology. The growth initiatives are evident, in Volkswagen South Africa persuading Benteler Automotive to establish a R178 million facility in South Africa and to export component stampings and pressings (Cokayne 2011b).

Kaggwa et al (2007), emphasised that to remain competitive in the automotive industry, component manufacturers have improved their proficiency in flexible production, by reducing the level of integration within the plant and increased investment in production of aftermarket components.

He further emphasised that the best practices in the automotive component industry were the involvement of OEMs developing closer linkages with component manufacturers by providing the component manufacturers with technological assistance. TSA introduced a strategy aimed at driving down costs as well as improving quality and delivery. The key focus areas were:

### 2.9.1 Technology

Furlonger (2007) emphasized that OEMs provide the foundation of the South African automotive industry's technology sources. The new component supply requirements necessitated that local component sector acquires high levels of technological competencies. To keep up to global competitiveness, South African component manufacturers have adopted new technology to supply to the OEMs.

Toyota SA is a major value adder in this regard, providing both passenger and light commercial vehicle (LCV) technology platforms, linking to both European Union (EU) and Thai-Japanese industry links. Worral, Donnelly & Morris (2004) stated that SA owned firms have established technical agreements and joint ventures with OEM's and international companies in order to access technology. Technology in the automotive industry changes quickly due to regulations and market demands; hence the industry focuses on new products and innovation (KPMG 2010). As illustrated in figure 2.4, tremendous focus is being placed on new product development and associated technologies.

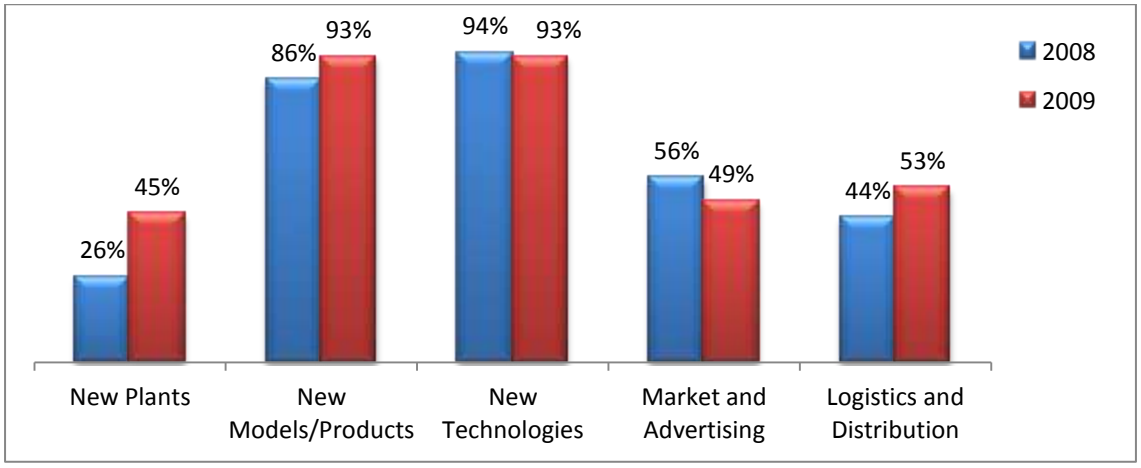


**Figure 2.4** Automotive OEM & Supplier investment focus areas.

**Source:** KPMG. 2010. KPMG's Global Auto Executive Survey 2010: Industry Concerns and Expectations to 2014

Toyota has bundled their models on platforms, because they are looking for economies of scale due to the crucial constraint of cost competitiveness. Toyota is producing two dimensionally distinct versions of the Hilux and Fortuner on their flexible common platforms. This leads to unique market versions whereby 60 percent of parts are common (Deloitte 2009). In creating a global footprint, Toyota and the component manufacturers have invested in new products and models, with associated technologies, in order to link their production and sales in markets with high growth rates (KPMG 2010).

### 2.9.2 Upgrading the Capacity of the Supply Network

Toyota SA developed its own supplier network, by focusing on the local market, due to its license agreement with Toyota Motor Corporation (TMC) Japan. Toyota SA engaged in licence agreements to ensure the right technology was secured for upgrading the capacity of its supply network. TSA saw its local suppliers as key stakeholders and while TSA was developing global sourcing, their objective was to develop the local supplier base to meet world standards (Barnes 2009).

Toyota initiated the Toyota Supplier Assessment system, which benchmarked all suppliers according to detailed criteria, developed by Toyota to support international standards. Toyota further initiated a Production Engineering Group, consisting of engineers, quality specialists and platform teams who worked with suppliers to meet the required criteria. Transition to world scale production and incorporation into Toyota's global production system had implications for component suppliers, in increasing local content and achieving economies of scale (Black 2011).

According to Cokayne (2011b), the APDP and the Automotive Investment Scheme (AIS) have been instrumental in securing R 14 billion in investment commitments from vehicle assemblers and component manufacturers. Nimrod Zalk, the Chief Director from the Department of Trade and Industry (DTI), stated that the automotive industry has committed to identifying key common components to source locally, to increase economies of scale and to examine how the existing support mechanism could be strengthened to increase localization and competitiveness within the automotive sector (Cokayne 2011c).

According to NAAMSA (2011) the survey conducted in 2010 highlighted that the quality of locally produced vehicles was perceived to be of better quality than imported vehicles. The survey revealed that locally produced light commercial vehicles (LCV) had 86 problems per 100 vehicles, compared with 95 problems with imported LCVs. Flatters (2002) stated that Econometrix agreed that the improved quality of locally made vehicles was one of the benefits to consumers of export contracts awarded to local motor manufacturers.

In South Africa and other emerging markets foreign owned assemblers increasingly prefer to source components from joint ventures and wholly owned subsidiaries rather than domestically owned firms. This has resulted in many South African firms establishing joint ventures with foreign companies. This resulted in upgrade of technological and production capacities and capabilities to become globally competitive (Black 2011).

Pitot (2010) stated that 2010 paints a picture of "cautious optimism" in the local component manufacturing industry. He adds that the true test of sustainability lies in manufacturing volumes and South African component manufacturers have to be aware that they have to keep on innovating to stay ahead of the pack, as international competition is fierce (Engineering News 2010).

## 2.10 Localisation challenges in the automotive component industry in South Africa

Local component suppliers to South African based OEM's have come from a past that was mostly characterized by isolation from the rest of the world, prone to frequent industrial disputes and subject to devaluation of the Rand. Barnes (2000) stated that components manufactured were not internationally competitive, due to their past inefficiencies, which were protected by government; hence OEM's demanded different equity relations between local component suppliers and their parent company component suppliers. The challenges and difficulties experienced by the automotive component manufacturing industry are addressed below.

I. Comrie (2002) stated that where local production of component are involved, there's a decreasing space for locally owned component supplies and almost no space for component suppliers using local technology.

South African component suppliers are thus increasingly being relegated to highly competitive niches in mature technologies in external after markets, making them vulnerable to exchange rates. The South African components industry faces challenges of contently improving their competitiveness to keep foreign components out of South Africa.

II. Lorentzen (2005) stated that the relatively low volumes and the wide range of components required by Toyota and other assemblers militated against achievement of world class productivity standards most glaringly in the case of just in time (JIT) production. Chiaberta (2004) argued that the ability of the domestic manufacturers to achieve the economies of scale required to produce automotive components at a competitive price was constrained due to the diversity of vehicles assembled in SA.

III. Black (2011) emphasised that flexible automation and production reorganisation have increased the variety of products that can be efficiently produced in a single plant; however the optimal plant size has not decreased. Smaller scale production means that tooling costs have to be amortised over a smaller number of units, hence quality is difficult to control due to frequent changes of smaller batches of production, which is a major cost factor. Many of the component manufacturers are not geared for large scale production; therefore they are dependent on foreign licensors because many of these agreements regulate exports (Chiaberta 2004).

IV. Lamprecht (2004) stated that due to the advent of rationalised models across the world, and the interchangability of parts, OEM's are not restricted to source from local suppliers. If local suppliers are not competitive in terms of costs and quality, OEM's has the option of sourcing from other countries. In the middle to long term, Toyota South Africa (TSA) plans to grow their export market in Europe. The growth in the European market has brought about more attractive incentives, in that Europe-sourced parts, fitted to vehicles bound for export back to Europe, are free of import tariffs Furlonger (2007). This incentive is attractive to TSA; however it presents a huge threat to local suppliers, as their comparative cost advantage against European suppliers is reduced.

V. Barnes (2009) stated that, in spite of the high volumes being achieved and Toyota's interest to increase local content, Toyota was pessimistic about their prospects due to second tier suppliers having limited skills. The shortage of skills and generic nature of many of the technical and engineering positions, within the industry allows frequent job rotation; therefore component manufacturers are hesitant to train employees only to see them leave. Lorentzen, & Barnes (2004), stated that the South African labour legislation is considered by automotive component manufacturers to be overly restrictive. Automotive component suppliers have to contend with on-going internal pressures and it has become a norm for management to tolerate poor performance on the part of the employees, rather than endure appeals in the labour courts. Lorentzen et al (2004), emphasized that the automotive component industry is characterised by strong trade union influences. They argued that the automotive industry operates in a just in time supply system, therefore work stoppages at component manufacturers has resulted in loss of production in the OEM's assembly plant. Black (2009) highlighted that the implementation of centralised bargaining forums have reduced the number of wage related strikes, however the demand for industry level wages has placed financial strains on smaller component suppliers.

VI. According to Damoense & Simon (2004), assemblers have consistently complained that many suppliers lack the required technology to supply components for the advanced vehicles being exported. What have been needed are much higher levels of investment, including a substantial expansion in foreign investment. The key problem in persuading both local and foreign firms to undertake such investments remains the problem of low domestic production volumes.

VII. Comrie (2002) stated that the scale of production has been one of the central problems encountered by the South African automotive component industry. He further stated that due to the wide range of products at low volumes, component manufacturers incurred premium costs in producing these wide ranges of products. Huge price savings can be achieved by economies of scale and reduction in fixed costs, especially in amortization of machinery.

VIII. Black and Bhanisi (2006) point out that component manufacturer were subject to the same industrial policies as OEM's. As such component manufacturers were not motivated to develop their technology base, production techniques or products further than what was required by the local OEM's. Component manufacturers developed a natural advantage in the ability to produce products in smaller production runs that would be less cost effective for international component manufacturer to manufacture. The inwardly focussed and protected local market created a component manufacturing industry that was not fit to be incorporated into the international supply chain Kaggwa et al (2009).

## 2.11 Summary

The analysis of the automotive component industry reflects that it has been largely influenced by the changes in the global market, especially with regard to changing technology and sourcing patterns. The analysis indicates that the South African automotive industry has been influenced by industrial policy since 1961 and has become reliant on these policies. The industrial policies have changed with the changing requirements of the global automotive markets, which included the changes in incentives and in end goals.

Multinational carmakers also have a major influence on where the bulk of component production takes place and can "encourage" suppliers to relocate or establish production in SA or any other location. Coupling tariff reductions with strong export support rather than simply liberalizing imports has changed the operating environment of the component manufacturers. This has forced companies to forge alliances with large multinational component manufacturers, who control modern technology and large supply contracts.

Industrial policies have been an important catalyst for the international automotive groups to strengthen their ties with their South African licensors and subsidiaries, and draw them into their global networks. It is essential to understand that optimising local content is the future growth and sustainability of automotive industry, which will be further explored in this empirical study.

# CHAPTER THREE

## Research Methodology

### 3.1 Introduction

According to Saunders, Lewis & Thornhill (2003), research can be defined as something that people undertake in order to find things in a systematic way, thereby increasing their knowledge. The phrase 'systematic' suggest that research is based on a logical relationship and not just beliefs. They further state that research is a process of planning, executing and investigating in order to find answers to our specific questions. In order to ensure we get reliable answers to the questions, the research needs to be carried out in a systematic manner, so that it is easier for others to understand and believe the interpretations.

Leed and Ormro (2005), describe research as a systematic and methodical process of gathering data in order to increase the knowledge and understanding of the phenomenon being researched. In order to gain an understanding of how automotive component manufacturers in the South African automotive industry feel about the impact of optimal local content on the future growth and sustainability of the automotive component sector a quantitative approach in gathering data was used.

Bryman and Bell (2007) believe that research does not exist in isolation, as it is directly influenced by management and business at large. Bryman and Bell (2007) further expounded that "research design relates to the criteria that are employed when evaluating business research and it is therefore, a framework for the generation of evidence that is suited both to a certain set of criteria and to the research question in which the researcher is interested".

The research methodology used is crucial to arrive at a result that can be value adding to the world of knowledge. This chapter reflects the research methodology used to capture the required data for analysis to achieve the following research objectives:

- Investigate the extent of localisation in the automotive component industry.
- Establish the challenges of optimising local content in domestically assembled vehicles.

- Analyse the economic impact of localisation on the growth potential of the automotive component industry in KZN.
- Establish the role of government in optimising local content in the automotive sector.

## 3.2 Aim of the Study

The South African automotive industry is an economically strategic sector, which has evolved through challenging times and has placed extreme pressure on automotive component manufacturers to remain competitive in the global automotive industry. This instability, along with global market dynamics resulted in automotive component manufacturers being highly dependent on imported technology and expertise. It is imperative for the domestic component industry to focus on improving capabilities to remain competitive in the industry. Therefore the aim of this study is to determine the impact optimizing local content in domestically assembled vehicles will have on the future growth potential of the automotive component sector.

## 3.3 Participants and location of the study

The province of KZN is host to one of South Africa's biggest automotive manufacturers, Toyota South Africa (TSA), manufacturing vehicles for the domestic and international markets. There are 84 component manufacturers located in KZN, supplying components to Toyota South Africa, for both domestic and export markets. They are located in a close proximity to TSA production complex in the Southern Industrial Basin. The study will be conducted in KwaZulu Natal, focusing on component manufacturers located in 100 km radius from TSA assembly plant.

The proposed unit of analysis for this study was the automotive component manufacturers. The study targeted one of the following individuals within the organization taking into account their roles and impact on key areas.

| Level in the Organisation | Involvement in the Organization |
|---|---|
| **Operations Managers**<br>**General Managers**<br>**Supply Chain Managers** | They have the ability to influence and implement strategic decisions |

**Table 3.1 List of targeted Respondents**

**Reasons for choosing this group of respondents are there:**

- Interaction with manufacturing and production processes, gives them first hand understanding and knowledge of their ability to manufacture the parts locally.
- Interaction with suppliers gives them the know-how of the cost implications of the production processes.
- Understanding of international quality standards helps maintain global competitiveness.
- Understanding of research and development helps in implementation of new technology and skills.

## 3.4 Research Methodology and Design

Figure 3.1 outlines the research approach, design and process undertaken for this study. These are outlined in the subsequent sections.

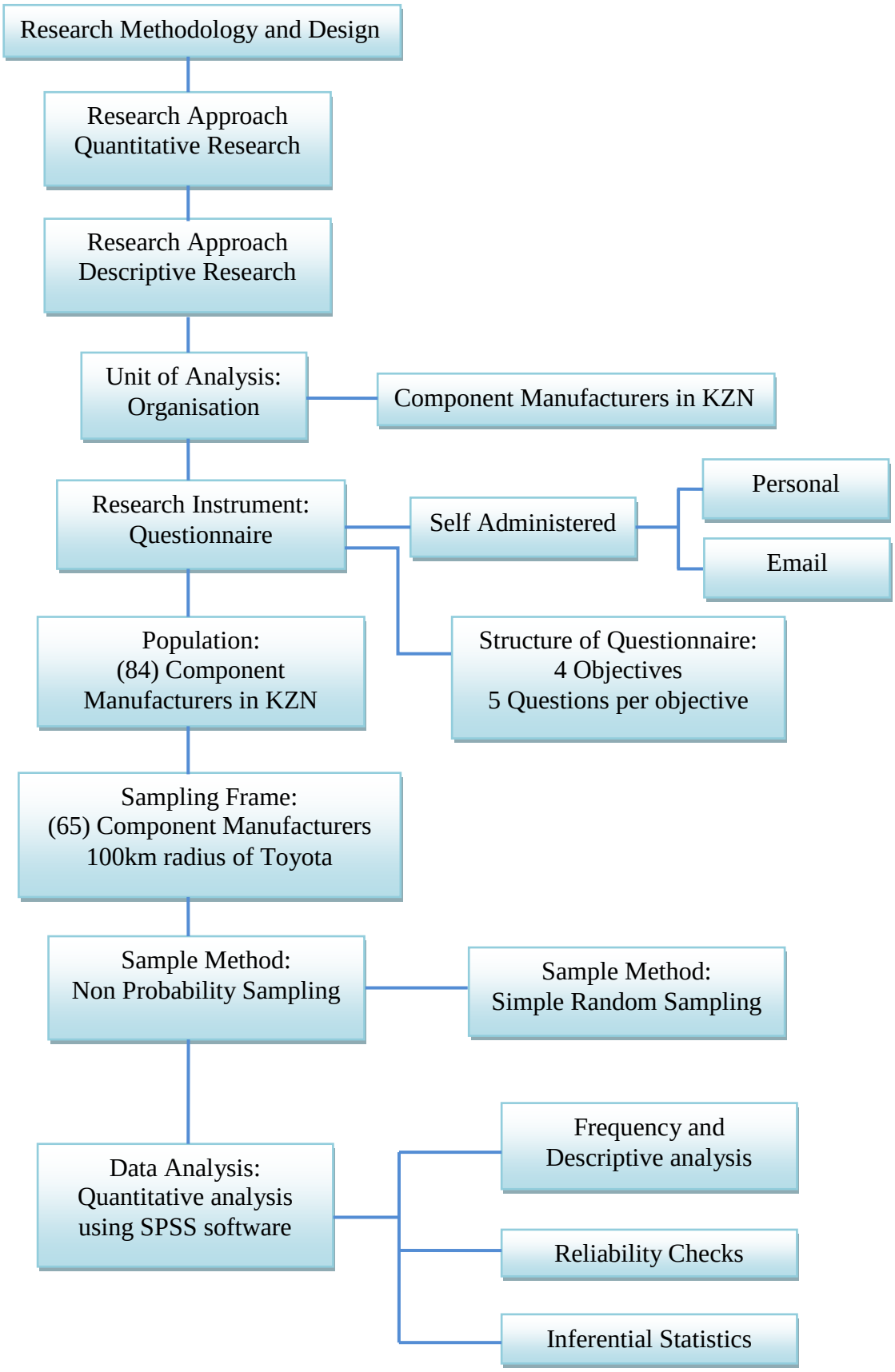


**Figure 3.1** Outline of Research Methodology

## 3.5 Research Approach

This chapter outlines the overall approach taken to determine the impact that local content will have on the future growth and sustainability of the automotive component sector. To determine the impact, a descriptive study method was used. The descriptive study was used because there was no attempt made to change the behaviour or condition of the present situation of the automotive component manufacturers, but rather measure things as they are. According to Sekaran and Bougie (2009), descriptive studies are undertaken when the characteristics of a situation are known to exist, and the researcher wants to be able to describe the characteristics better, by presenting a profile of the factors.

In researching a specific phenomenon, there are many tools that can be exploited in order to gather the information required. In these instances qualitative and quantitative research methods are used to collect numerous forms of data in order to construct a clearer understanding of the situation being researched. There are differences between qualitative and quantitative research, which are important to understand before choosing an approach to a study.

The distinction between quantitative and qualitative research is important to identify the research approach underlying the given study. The research method chosen had a direct influence on the questions asked, the methods chosen, the statistical analysis used, inferences made and the ultimate goal of the research. When critically reviewing scientific research, the type of research method chosen influences the questions asked and the answers given.

The importance of this study dictated the type of research methodology employed and for the purpose of this study and considering all critical aspects thereof, this study was conducted by means of deductive, quantitative method. In order to gain an understanding of how automotive component manufacturers in the South African automotive industry feel about the impact of optimal local content on the growth potential and sustainability of the automotive component sector a quantitative questionnaire was used in gathering data. The reasons for this choice are detailed below by describing the differences between qualitative and quantitative research.

### 3.5.1 Qualitative Research

Leedy and Ormrod (2005), state that qualitative research has two characteristics in common. Firstly it focuses on phenomena that occur in natural settings and secondly it involves studying the phenomena in all their complexity. According to Saunders, Lewis, & Thornhill, (2003), qualitative analysis is classified as data that has not been quantified through the use of conceptualization based on meanings expressed by words.

Sekaran and Bougie (2009), believe that qualitative research adopts an inductive process, which is based on theory building, where the process will start with observations and involve repeated sampling with the aim to establish generalisations about the phenomenon being investigated. Leedy and Ormrod (2005), believe that regardless of the kind of data involved, data collection in a qualitative study takes a great deal of time.

This study did not use the qualitative approach to collect and analyse data, however a questionnaire was administered to collect numerical data that was analysed and processed into statistical form. The numerical data collected was used to construct statistical models to explain the observations. Due to limited time frames for the study, a cross sectional study was carried out, where data was collected in a single point in time over a 4-6 week period.

Qualitative data was not used for this research because the research instrument sought to obtain accurate quantitative data to analyse quantitative potential for optimisation of local content in the automotive component industry. A qualitative study would only seek to add a dimension, in understanding the challenges and growth potential of the sector, which is not the main focus of the study, and this understanding can be achieved through an exhausted literature review.

### 3.5.2 Quantitative Research

According to Sekaran and Bougie (2009), quantitative research is an enquiry into an identified problem, based on testing a theory, measured with numbers and analysed using statistical techniques. Leedy and Ormrod (2005), describe quantitative research as a research that involves identifying characteristics of an observed phenomenon and does not involve modifying the situation under investigation.

Bryman & Bell (2007) state that quantitative research method uses mathematical analysis and can reveal statistically significant difference between samples. They further state that the questionnaire method has certain limitations, such as low response rates in certain situations. Although the questionnaire has limitations, the researcher chose to use it due to the ease of administration, cost effective option and minimised unexpected information, as identification questions were not asked due to the confidentiality commitment by the researcher.

This research remained objectively separated from the subject matter because the research was objective in approach in the sense that it only seeks precise measurements and analysis of automotive component manufacturers to answer the objectives of this study (Bryman & Bell 2007). The questionnaire was formulated on the quantitative form of data collection and analysis. In gathering, analysing and interpreting data, an objective approach was maintained throughout the process. The answers to the questions were based on numerical selection instead of words and the data that was generated from the sample was subject to statistical techniques so inference could be drawn on the broader population.

### 3.6 Sampling

According to Sekaran and Bougie (2009) sampling is a technique of selecting a suitable representative part of a population for the purpose of determining parameters and characteristics of the entire population. Sampling is used because populations are very large and it is costly and impractical to investigate each member of the population to determine the values of the parameters. A sample is used to draw inferences about parameters of the entire population (Sekaran & Bougie, 2009).

According to Bryman and Bell (2007), inferential sampling is a method used to discover something about a population based on a sample. Further research can be classified into two distinct sampling procedures, namely probability sampling and non-probability sampling. The selection of the sample for this study therefore plays a critical role in qualifying the results of the study.

### 3.6.1 Non-Probability Sampling

Keller (2009) states that the core characteristic of non-probability sampling techniques is that samples are selected based on the subjective judgment of the researcher. According to Bryman & Bell (2007), researchers are unable to generalize the results of the sample of the population, because no controls are placed on the sample selection process, which means that the sample may not be representative of the entire population. Keller (2009) highlights that for non-probability based samples, the relationship between the sample and the population is unknown, and hence every element in the population does not have the same or equal chance of being selected.

### 3.6.2 Probability Sampling

Keller (2009) states that in probability sampling, the size of the population is known and all elements in the population have approximately equal opportunity of being included in the sample. According to Bryman & Bell (2007) probability sampling technique core characteristic is that units are selected from the population at random, using probabilistic methods, which enables the researcher to make statistical inferences from the sample being studied to the population of interest. In probability sampling, samples can be generalized to the population with a degree of confidence, which is applicable to this study.

Leedy and Ormrod (2005), suggest that probability sampling is chosen when researchers want precise, statistical description of a larger population. A simple random sample is a type of probability sampling, where each element has an equal opportunity of being selected for inclusion in the sample (Bryman & Bell 2007). Simple random sampling was used to access sufficient people with characteristics required for conducting the research.

### 3.6.3 The Research Population and Sample

For the purpose of this study, the research was specifically focused on the automotive component manufacturers situated in KZN. Simple random sampling was used to collect data for this study, to ensure that all component manufacturers in KZN had an equal probability of inclusion in the sample.

The targeted sample of respondents was one person per company, who is directly, involved in the production and supply chain processes. The population consisted of 84 component manufacturers situated in KZN. Keller (2009) suggests that "sample sizes larger than 30 and less than 500 are appropriate for most research" which depends on the nature of the population. It was on this basis that approximately 65 companies were targeted from on a population of 84. Targeting a sample size of 65 companies, with one representative from each company, 47 responses were actually received. Table 3.2 illustrates the response rate.

| **Desired Respondents** | 65 | **Percentage completed** |
|---|---|---|
| Total number of incomplete questionnaires | 18 | 27.7% |
| Total number of respondents that completed the questionnaire | 47 | 72.3% |

**Table 3.2 Population Sample Responses**

The desired number of respondents was **65**, which equates to **78%** of the population. This was the desired population, due to the fact that they were situated in a radius of 100 km from TSA assembly plant but only 47 completed the questionnaire. This equated to 72.3% success rate and 27.7% of the respondents targeted failed to complete the survey.

## 3.7 Data Collection

According to Cooper and Schindler (2006) data can be described as "information collected from participants, by observing, or from secondary data". According to Saunders *et al.* (2003), interviews, questionnaires and observations are the most commonly used data collection methods. They further state that questionnaires can be used for descriptive and explanatory research. Choosing a data collection method is influenced by the sample frame, the research topic, the characteristics of the sample and the survey costs (Saunders *et al.* 2003). In this research a questionnaire has been adopted as a data collection instrument.

The questionnaire was developed to bring forth information on the substance and sentiment that key role players, working in the automotive component industry had with regards to the impact of localization on the growth potential of the automotive component sector.

A total of 26 questions were posed to determine the extent to which key roles players believe that optimizing local content will improve the growth and competitiveness of the automotive component sector.

Potential respondents of this study were 84 component manufacturers, who were pre notified of this study via email. Before the questionnaires were delivered to the respondents, the researcher contacted each potential respondent telephonically to enhance the response rate.

Data collection was conducted from mid February 2012 to Mid March 2012. Questionnaires together with a covering letter were hand delivered or emailed to respondents. It was intended that Operations Managers, General Managers or Supply Chain Managers complete the questionnaire, however in most companies the questionnaire was completed at Director level, who saw the benefit of the study. Companies selected for the study forms part of the Trade and Investment KwaZulu-Natal (TIKZN) database. Questionnaires were sent out with consent from TIKZN and ethical clearance was obtained.

Most first and second tier component suppliers were very interested and supportive of the research; however respondents from third and fourth tier suppliers were reluctant. Third and fourth tier suppliers preferred that the questionnaires be directed to the company owners, as many of the operations are small and they didn't want to compromise their competitiveness in the market. There was an overall delay on turnaround time of the questionnaires.

### 3.8 Development of the Instrument

The main aim of the study was to ensure that the research objectives were achieved. The questionnaire was compiled to ensure that each research objectives was addressed and the relevant data was systematically collected and analyzed for each objective. The questionnaire was designed to ensure that it was simple, user friendly and concise for the respondent to understand.

The questionnaire was divided into two sections. The first section covered general information of the respondents. The second section focused on the objectives of the study, to determine the respondent's view of the impact localization will have on the growth and

sustainability of the automotive component industry.

The questionnaire consisted of 5 sections. Section A consisted of 6 questions, covering general questions. Sections B-E consisted of 5 questions each, focusing on the 4 research objective. Questions were grouped into categories to make answering easier and to get the desired impact.

The questionnaire was based on closed ended questions, which were designed on a numerical ranking scale only. All questions were closed ended, allowing the respondent to choose one option only. The respondents answered the questions by placing a tick in the checkbox on each question, which made the data easily identifiable.

Bryman & Bell (2007), describe a Likert scale as a non-comparative scaling technique, which is unidimensional in nature. The questionnaire used the Likert scale to measure the respondent's level of conformity with each question. According to Bryman & Bell (2007) a 3-point or 5- point Likert scale allows respondents to answer questions from a neutral viewpoint, which does not provide meaningful data as a 4-point scale. Therefore in designing the questionnaire a, 4-point Likert scale was used to minimize the error of central tendency in order to obtain more specific results.

Each questionnaire administered was accompanied by a covering letter, which outlined the aim and objectives of the study and providing a brief explanation on the purpose of the research. The letter also gave assurance of confidentially of the respondent.

### 3.9 Pretesting and Validation

When evaluating a research instrument, reliability and validity are two important aspects to consider. Bryman & Bell (2007), stated that an instrument is said to have high reliability if it can be trusted to give an accurate and consistent measure of unchanging value. Babbie (2009), introduces the concept of validity in an uncomplicated form by stating that validity refers to the degree of which the measuring instrument device used, is effectively measuring what the researcher has intended to measure. A similar concept of validity was applicable for the self completion questionnaire administered for this study, which showed reliability and validity. The questions formulated in the questionnaire for this study, validated the intended

measurement of each objective. The measure of this study was reliable because little variation in results was obtained and respondent's scores were being relative. The measuring instrument gave an acceptable measure of accuracy, which validates the soundness and effectiveness of the measuring instrument.

Cooper and Schindler (2006) state that a pretesting is conducted to detect weaknesses in the research methodology and in the data collection instrument employed. For this study, the rationale for pretesting was to fine tune the questionnaire so that the respondents understood what was being asked and had no problem answering the questions and to eliminate difficulties when recording the data. An initial questionnaire was used to conduct a pretest on 6 respondents (table 3.2) to fine tune the questionnaire and ensure that it was user friendly.

| Respondents Position | Company |
|---|---|
| Operations Manager | Hesto Harnesses |
| Quality Manager | Hesto Harnesses |
| Supply Chain Manager | Hesto Harnesses |
| Supply Chain Director | Smiths Manufacturing |
| Engineering Manager | Smiths Manufacturing |
| Lecturer (Supervisor) | University of KwaZulu-Natal |

**Table 3.3 List of respondents included in the pretest of the questionnaire**

Questionnaires were administered to 3 persons per company as planned. The respondent's responses were the same from each company with difference in general data only. Comments received from the respondents allowed the researcher to make changes to the approach of administering the questionnaire, and the target focus changed from individuals to companies hence, pretesting of the questionnaire added value by not duplicating respondent's responses. The revised population will be the 84 component manufacturers in KZN and the sample size will be 65 component manufacturers, targeting one respondent representing a company.

As articulated in table 3.3, the respondents suggested minor corrections such as spelling and grammar to the questionnaire, which was amended accordingly. The questionnaire was administered to the potential respondents.

## 3.10 Analysis of Data

Data analysis is required to bring meaning to the data gathered, so that the research question and objectives will be answered. Leedy and Ormrod (2005), argue that data looked at one way only yields an incomplete view and provides a small segment of its full meaning, therefore data analysis for this study used both descriptive and inferential frequency.

The data for this study was recorded manually and the first step in the process was to capture the results into a database. The data was then subject to an error and code verification process to ensure that all codes that were captured were legitimate. To analyse the data, the Statistical Package for Social Sciences (SPSS) was used. This program was chosen because access to the software was made available by University of KwaZulu-Natal, as it is highly recommended for the analysis of quantitative data.

Leedy and Ormrod (2005), describe inferential statistics as methods that use probability theory to test a hypothesis formally, permit inferences from a sample population and test whether descriptive results are likely to be due to random factors or to relationships. This study used inferential statistics to extract dependencies between the independent and dependent variables. Each independent variable was tested for correlation to the dependent variables.

Page & Meyer (2000) defined descriptive statistics as those methods that involve collection, presentation and characterization of data in order to describe various feature of a set of data. Descriptive statistics was used for this study to summarize the data, which included frequencies, measures of central tendencies and measures of dispersion. Figure in the form of bar graphs and tables were used to present the data.

Wegner (2002) defines measurement of central location as “a statistical measure which quantifies where the majority of the observations are concentrated”. The data collected was analyzed using the measures of central tendency and dispersion:

The data analysis allowed for clear conclusions to be made on the impact of local content on the future growth and sustainability of the automotive component industry in KZN.

## 3.11 Summary

This chapter presented an empirical research methodology employed to conduct this research. A vast amount of insight was gained on how research should be conducted and the processes to be followed. The methodology used provided guidance in undertaking the study. This chapter outlined the aim of the study, the location and participants of the study and the research approach and the sampling method that the study will pursue. It further explored the data collection methods and the statistical analysis tools employed to present and interpret the data.

The research instrument employed for this research proved to be reliable and valid, providing meaningful information of the objectives of the study. Chapter 4 presents the results of the data and attempts to draw meaningful conclusions from the gathered data.

# CHAPTER FOUR

## Presentation and discussion of Results

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### 4.1 Introduction

This chapter presents the results found through the collection of data. The source of data was gathered through the use of a questionnaire, which was administered in a four to six week period. A total of 65 questionnaires were administered, with 47 responses received, which equated to a success rate of 72.3%. It was intended that Operations Managers, General Managers or Supply Chain Managers complete the questionnaire, however in most companies the questionnaire was completed at Director Level, which fell under the category of other in the questionnaire, which equated to 46.8% of the respondents.

The results are presented in graphs and table form, and have been separated into sections in order to achieve the objectives of the study. The data was analysed using SPSS version 15.0. A ‘p’ value <0.05 was considered as statistical significant. Descriptive statistics in the form of frequency, percentage, mode and cross tabulation tables were computed to compare each question in objective one to objective four with the biographical variables. Chisquare statistics could not be computed because of the small cell sizes (Keller 2009).

Zikmund (2003) refers to data analysis as the application of reasoning to understand and interpret data that has been gathered. This chapter therefore seeks to analyse and discuss the data gathered from the respondents in the automotive component industry. This chapter is formatted to discuss the biographical variables and the results of each objective in separate sections.

## 4.2 Biographical Variables of sample

Table 4.1 reflects the frequency distribution of the biographical variables. The percentages are graphically presented in Figure 4.1.

| Biographical variables | | % Respondents | No of Respondents |
|---|---|---|---|
| Current Position | General Manager | 25.5% | 12 |
| | Operations Manager | 12.8% | 6 |
| | Purchasing Manager | 10.6% | 5 |
| | Supply Chain Manager | 4.3% | 2 |
| | Other | 46.8% | 22 |
| Tenure | 0-5 years | 34.0% | 16 |
| | 6-10 years | 25.5% | 12 |
| | 11-15 years | 17.0% | 8 |
| | More than 15 years | 23.4% | 11 |
| Number of employees | 0-100 | 34.0% | 16 |
| | 101-250 | 10.6% | 5 |
| | 251-500 | 14.9% | 7 |
| | More than 500 | 40.4% | 19 |
| Category of component supplier | Tier 1 | 57.4% | 27 |
| | Tier 2 | 36.2% | 17 |
| | Tier 3 | 6.4% | 3 |
| | Tier 4 | 0.0% | 0 |
| Classification in value chain | Material supplier | 6.4% | 3 |
| | Component supplier | 25.5% | 12 |
| | Module assembler | 59.6% | 28 |
| | Distributor | 8.5% | 4 |
| Type of ownership | Locally owned South African supplier | 59.6% | 28 |
| | Locally owned South African supplier operating under international licenses | 2.1% | 1 |
| | Joint venture of locally owned South African and International Supplier | 19.1% | 9 |
| | International owned supplier | 19.1% | 9 |

**Table 4.1 Frequency Distribution of the Biographical Variables**

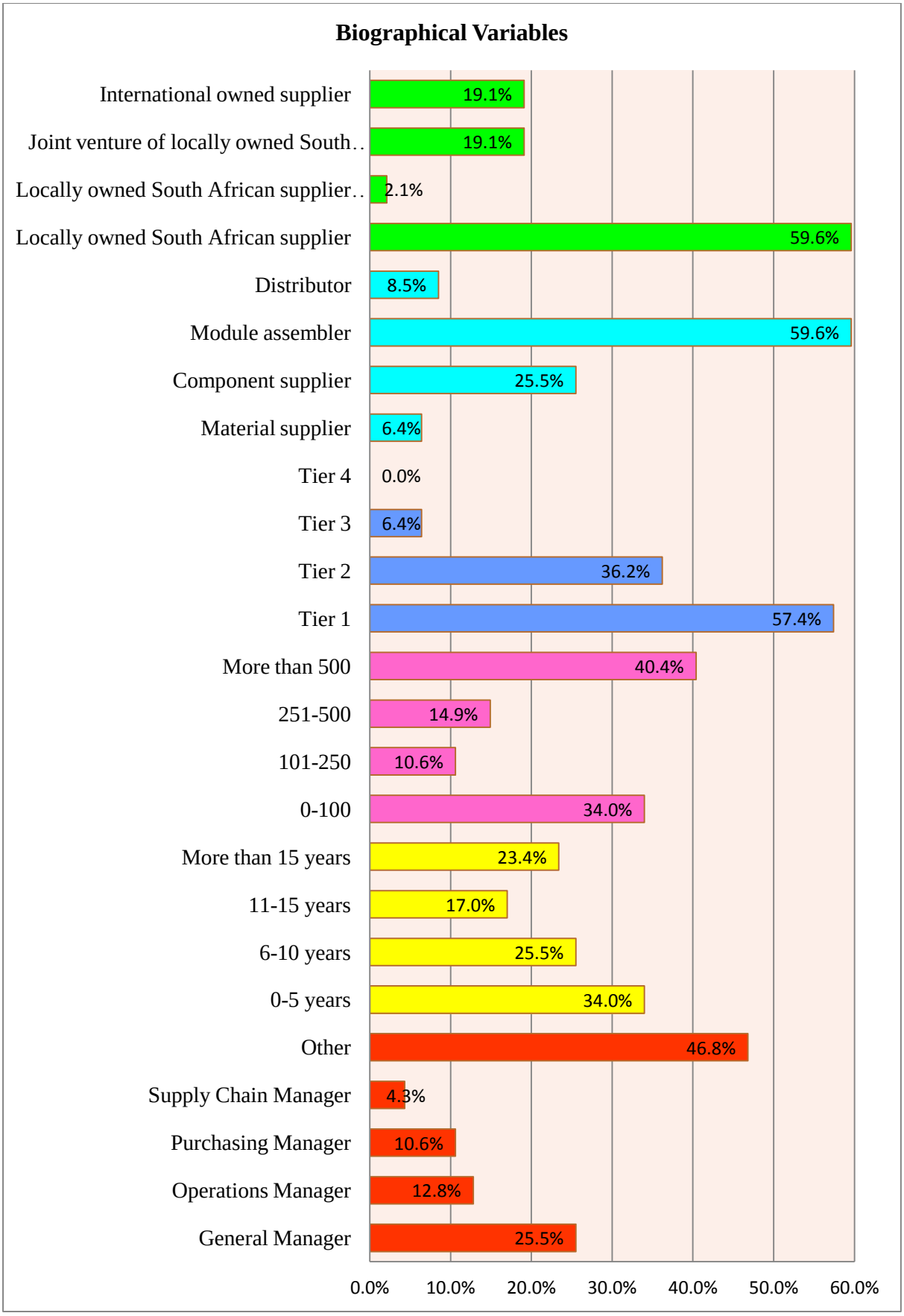


**Figure 4.1 Frequency Distribution of the Biographical Variables**

The biographical results show that 46.8% of the respondents fell under the category of ‘other’ (any outside the management cadre that was targeted), working between 0-5 years in the organization. Further data analysis revealed that in most companies the questionnaire was completed at Director and Executive Level, which resulted in the high response rate in the category ‘other’.

The data shows that 59.6% of the component suppliers are locally owned, with 2.1% of them using international patents or licenses, of which 59.6% are classified as modular assemblers in the supply chain, employing more than 500 people. Data also indicates that 19.1% of the component suppliers are joint ventures between locally owned and internationally owned supplier and 19.1% are internationally owned suppliers. The data agrees with the trend shown in Section 2.4, where the research by Barnes and Morris (2008) points to the development of the supplier base in South Africa. Barnes and Morris (2008) state that more than 70% of component suppliers originate in an international environment, either wholly owned international suppliers or joint ventures of locally owned international suppliers.

The data shows that 57.4% of the South African automotive suppliers operate on the first tier level, with 36.2% operating on the second tier and 6.4% on the third tier level. Implications that can be drawn from the results are that there must be strong competition on the first tier level, as locally owned suppliers are able to get market access on the first tier level, which shows the ability to compete with internationally owned suppliers.

The subsequent sections will present the findings of the empirical research through graphical presentation and interpret the same.

## 4.3 Objective one: to investigate the extent of localization in the automotive component industry

(Damoense & Simon 2004) stated that the South African automotive component industry sees itself linked into the global automotive value chain exposes it directly to global competition. Substantial performance upgrades in the South African automotive industry is due to competitive forces, which limits the opportunities for increases in value addition and output. Black and Bhanisi (2006) emphasises that it is clearly evident that there is a decline in local content in domestically assembled vehicles, as only 35% of the vehicle is manufactured using

local parts, while 65% are imported parts. Barnes and Morris (2008) argued that the benefits of the South African automotive component industry of engaging in global value chains are clear, but the long term sustainability and development of the industry remains in question.

### 4.3.1 Volume of locally manufactured components used in the Assembly Process

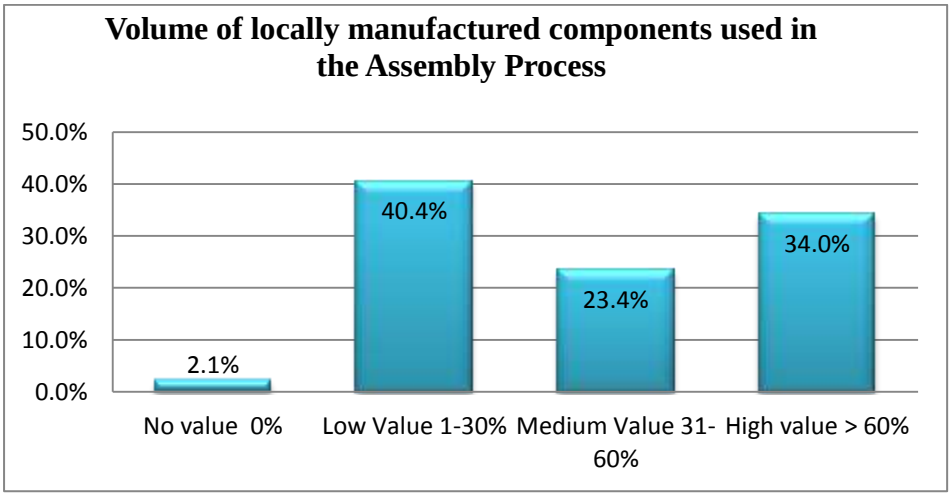


**Figure 4.2 Volume of locally manufactured components used in the assembly process**

Figure 4.2 reflects that overall 40.4% of the sample indicated that the volume of locally manufactured components used is between 1-30%, which means that 34% of the sample indicated that high volume of greater than 60% is used while 23.4% indicated medium volume between 31-60% is used. Of the 59.6% locally owned component suppliers, 27.7% use between 1-30% of locally manufactured components, while 21.3% use more than 60% locally manufactured components.

These component suppliers are modular assemblers in the value chain, operating at 19.1% at the first tier and 17% at the second tier operation. The distribution between low volume of 1-30% and high volume of more than 60% of locally manufactured components used in the assembly process, is in proportion to locally owned suppliers and joint venture between multinationals and local suppliers. The results of this finding support the argument of Black and Bhanisi (2006), who state that foreign direct investment by first tier suppliers are there to mainly draw on the domestic base, which resulted in a decline in local content in domestically manufactured vehicles.

### 4.3.2 The percentage of imported components used in the production process

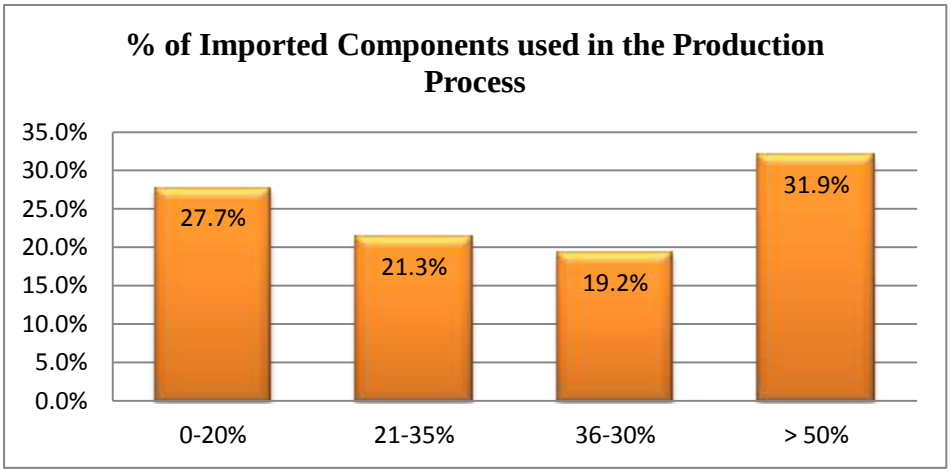


**Figure 4.3 Percentage of Imported Components used in the production process**

The findings presented in figure 4.3 indicate that 31.9% of respondents use more than 50% of imported components is from tier 1 and tier 2 operations, of which 19% are classified as modular assemblers and 8.5% as component suppliers. The results of this finding agree with the research of South African Automotive Benchmarking Club (2006), which stated that affiliates of multinationals imported 53.7% of their requirement compared to only 29.4% by local firms. The findings of this research reveal that joint venture between multinationals and locally owned suppliers still use more than 50% of imported components, while South African owned companies use between 0-20% of imported components.

### 4.3.3 The percentage of product made from local content

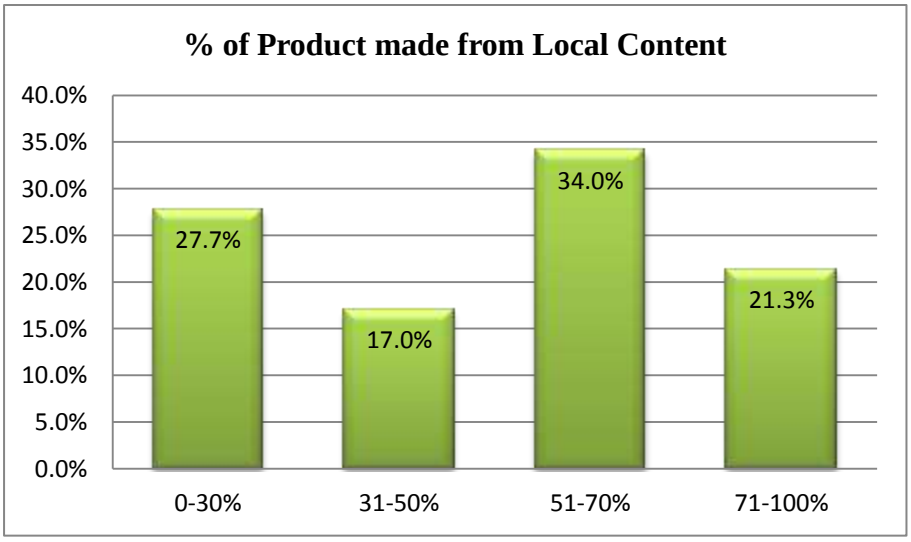


**Figure 4.4 Percentage of product made from local content**

The results from figure 4.4 shows that overall 34% respondents indicated that 51-70% of their product is made from local content of which 14.9% are locally owned suppliers and 12.8% are internationally owned suppliers. Figure 4.4 further shows that 21.3% respondents indicated that 71-100% of their product is made from local content, of which 17% is locally owned modular assemblers, classified as tier 1 and tier 2 operations.

It is clearly evident from the findings that 31.9% of locally owned component manufacturers products have a local content of greater that 50%, however only 6.4% of joint venture between multinationals and locally owned companies have a local content of greater than 50%. The results of the findings support the estimation of Pitot (2011), where he estimated that the average local content was between 30 and 40% by South African owned component manufacturers and have not changed over the years. Barnes and Black (2011) arguments are supported by the findings that multinationals are mostly 'system integrators', where they operate as assemblers of imported components and use minimal local content in their assembly processes.

### 4.3.4 Rand value of Local Content used per month

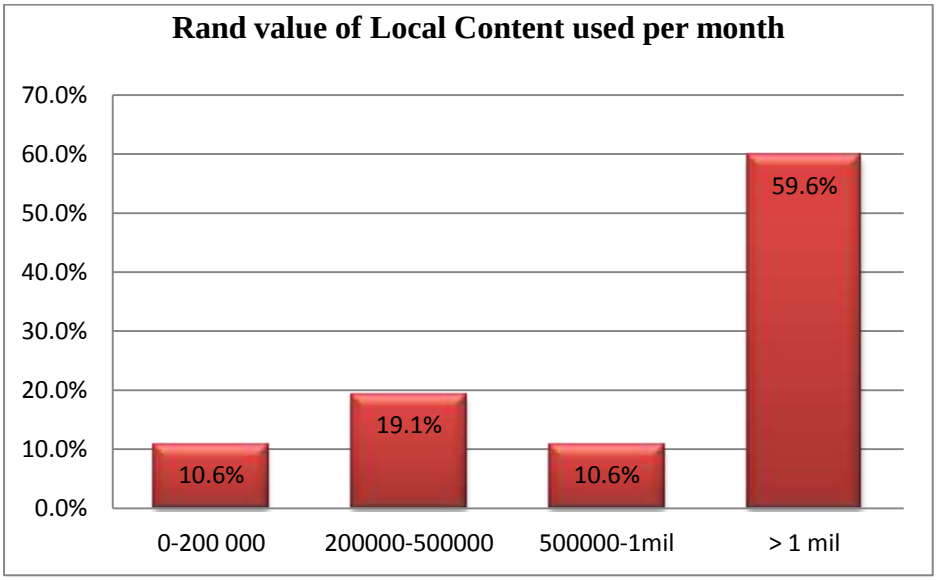


**Figure 4.5 Rand value of Local Content used per month**

The findings presented in figure 4.5 reveals that 59.6% respondents indicated that the rand value of local content used is above R1 million per month.

The data shows substantial difference of utilisation of local content per month, where 25,5% of locally owned suppliers utilise more than a million rand local content per month, while joint venture suppliers utilise 17% and international owned suppliers utilise only 14.9%. It is clearly evident from this finding that locally owned component suppliers, who are from tier 1 and tier 2 operations, utilise a greater rand value of local content compared to joint venture and internationally owned suppliers. The results of this finding supports the reports of NAAMSA (2011), which stated that R100.2 billion of components were imported in 2010, which is expected to increase in 2011 due to the increase in vehicle imports.

### 4.3.5 Percentage of Local Suppliers that form part of the Supplier data base

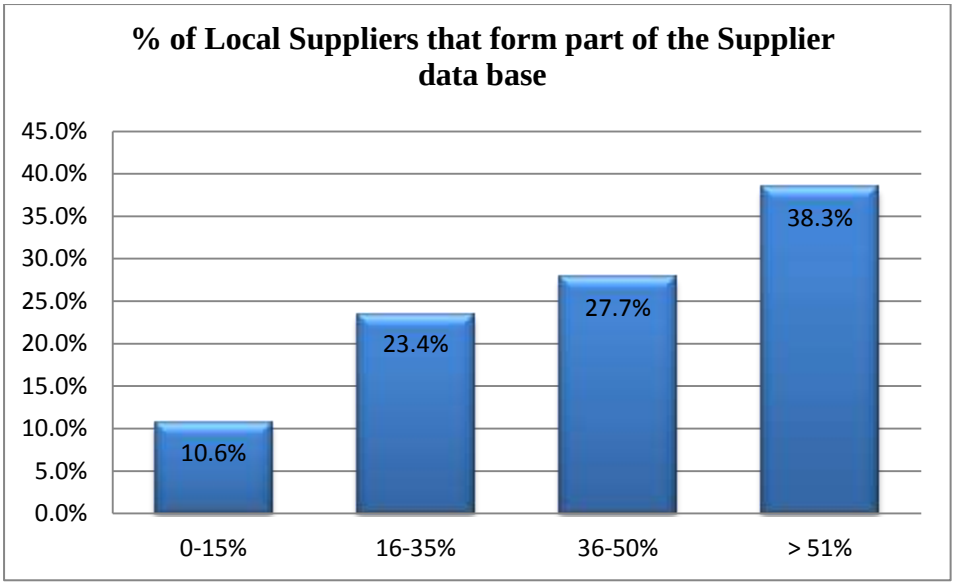


**Figure 4.6 Percentage of Local Suppliers that form part of the Supplier data base**

Figure 4.6 shows that 38.3% of responses indicated that more than 51% of local suppliers form part of the supplier data base. Of the 38.3% respondents, 27.7% are locally owned suppliers, while only 6.4% are joint venture suppliers and 4.3% international owned suppliers that are equally distributed between tiers 1 and tier 2 operations. The results further indicate that 27.7% responses indicated that local suppliers form part of the supplier data base of which 12.8% are internationally owned suppliers and 10.6% are locally owned suppliers.

The results of this finding clearly reveals that internationally owned suppliers data base is still focused on majority of international companies, with only 4.3% local suppliers forming part of their supplier base. The results of this finding reveals that sourcing of components in domestic markets are not a priority of internationally owned suppliers and joint venture suppliers, therefore the AIEC (2011), state that OEM's perceive increasing local sourcing levels in South African manufactured vehicles as a pre-requisite for establishing a more sustainable productive base.

## 4.4 Objective two: to establish the challenges of optimizing local content in domestically assembled vehicles.

Comrie (2002) stated that South African components industry faces challenges of contently improving their competitiveness to keep foreign components out of South Africa, due to the advent of rationalised models across the world, and the interchangability of parts, hence OEM's are not restricted to source from local suppliers. Chiaberta (2004) argued that the ability of the domestic manufacturers to achieve the economies of scales required to produce automotive components at a competitive price was constrained due to the diversity of vehicles assembled in SA.

### 4.4.1 The Impact of Import Tariffs on increasing localization within the manufacturing process

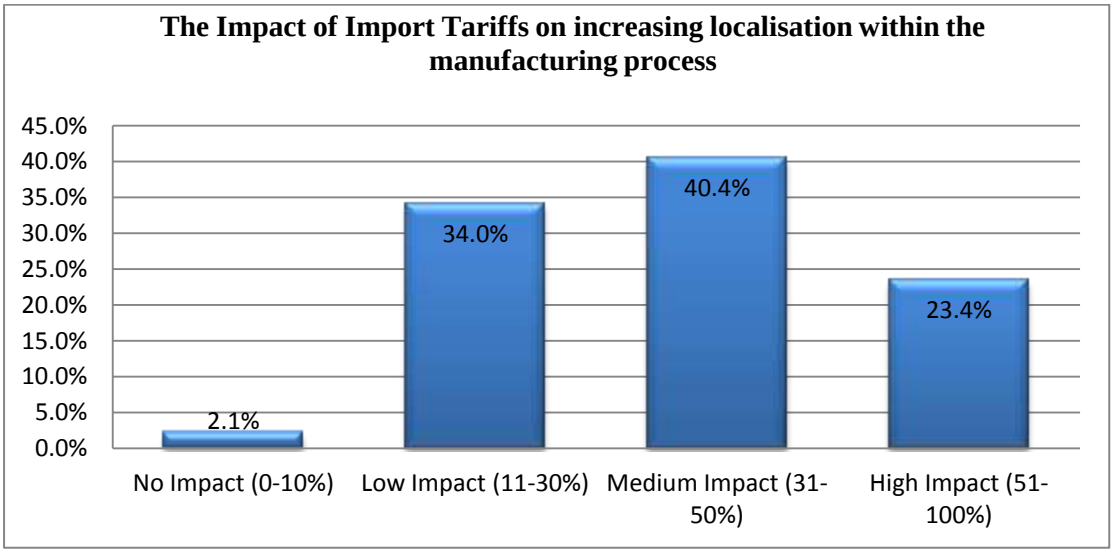


**Figure 4.7 Impact of Import Tariffs on increasing localization within the manufacturing process**

The results of the findings presented in figure 4.6 indicate that the impact of imports tariffs on increasing localization is between low impact of 11-30% and medium impact of 31-50%. Figure 4.7 shows that of the 74.4% respondents, 34% indicated that the impact of import tariffs is low between 11-30%, while 40.4% indicated that import tariffs has medium impact between 31-50%. Locally owned component suppliers and modular assemblers, in tier one operations indicated that import tariffs on increasing localization have an equal, medium and high impact within the manufacturing process of 14.9%. Locally owned suppliers utilize high volume of greater than 60% of locally manufactured components in the manufacturing process as indicated in figure 4.2; hence the findings of figure 4.7 reveal that 27.7% respondents of locally owned suppliers indicate that the impact of import tariffs on localization will be low, between 1-30% in the manufacturing process. Joint venture and internationally owned suppliers responses indicated that import tariffs will have a medium to high impact to their manufacturing process because the volume of locally manufactured components used in the manufacturing process is between1-30% as presented in figure 4.2. These findings agree with the argument of Black (2011) that reduced import tariffs present a huge threat to local suppliers, as their comparative cost advantage against global suppliers is reduced.

### 4.4.2 Rating of Skills Capabilities of Component Manufacturers

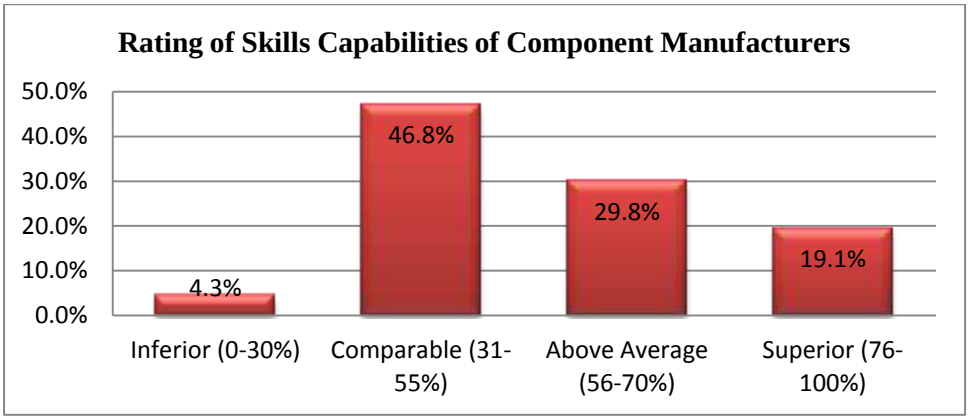


**Figure 4.8 Rating of Skills Capabilities of Component Manufacturers**

Figure 4.8 show that 46.8% respondents rate the skills capabilities of component manufacturers between 31-55% comparable. Of the 46.8% respondents, 29.8% are from tier 1 component suppliers and modular assemblers, while 17% are from tier 2 module assemblers.

The findings further indicate that 29.8% of the respondents rate the skills capabilities as above average between 56-70%, with 14.9% being tier 1 module assemblers and 10.6% being tier 2 component suppliers and modular assemblers. Of the 59.6% responses of locally owned suppliers, 25.5% rate their skills capabilities as comparable between 31-55%, while 19.1% rate their skills capabilities as above average between 56-70%, however 19.1% of the respondents classify the skills rating as superior between 76-100%. Joint venture and international suppliers classify their skills as comparable between 31-55%, with a small percentage of respondents indicating that 4.3% and 6.4% respectively have above average skills between 56-70%. A very small percentage respondents rate the skills capabilities as inferior.

### 4.4.3 Comparison of domestic component manufacturers pricing to Global manufacturers.

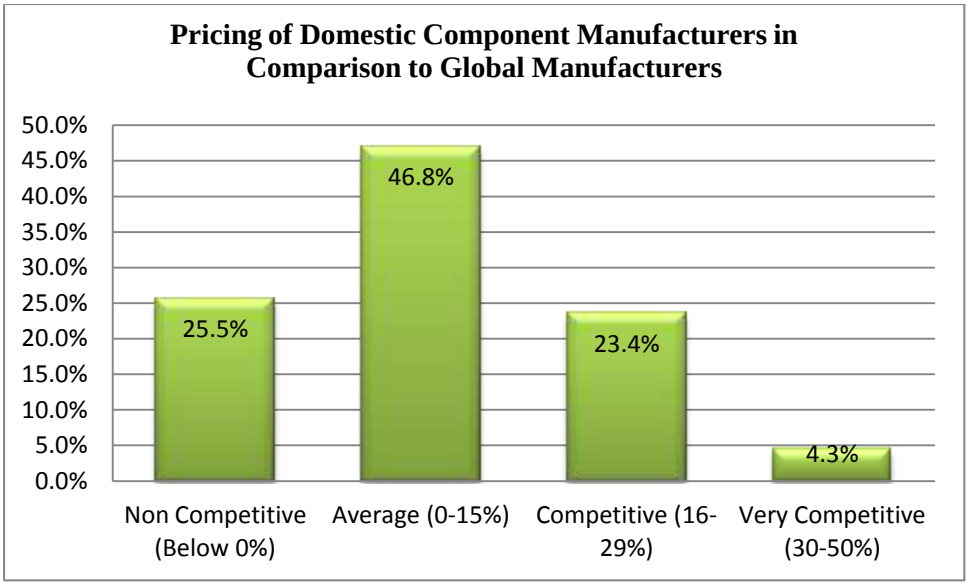


**Figure 4.9 Pricing of Domestic Component Manufacturers in Comparison to Global Manufacturers**

According to figure 4.9, results reveal that 46.8% of respondents from tier 1, tier 2 and tier 3 operations stated that their pricing in comparison to global markets are average between 0-15%, while 25.5% respondents from tier 1 and tier 2 stated that their pricing is non-competitive, which is below 0%. This may be due to numerous reasons such as uplifting import tariffs on automotive components, removal of all local content provisions and import-export complementation at OEM level.

Of the 59.6% respondents of locally owned suppliers, 19.1% modular suppliers operating as tier 2 suppliers indicate that their pricing in comparison to global markets is competitive; however joint venture and international suppliers did not share the same sentiment. From the analysis, that is evident in figure 4.2, it can be deduced that locally owned suppliers are competitive because of their high volume of locally manufactured components of greater that 60% that is used in their manufacturing process.

### 4.4.4 Component Manufacturer's Dependence on Foreign Licences to increase supplier capacity and regulate exports

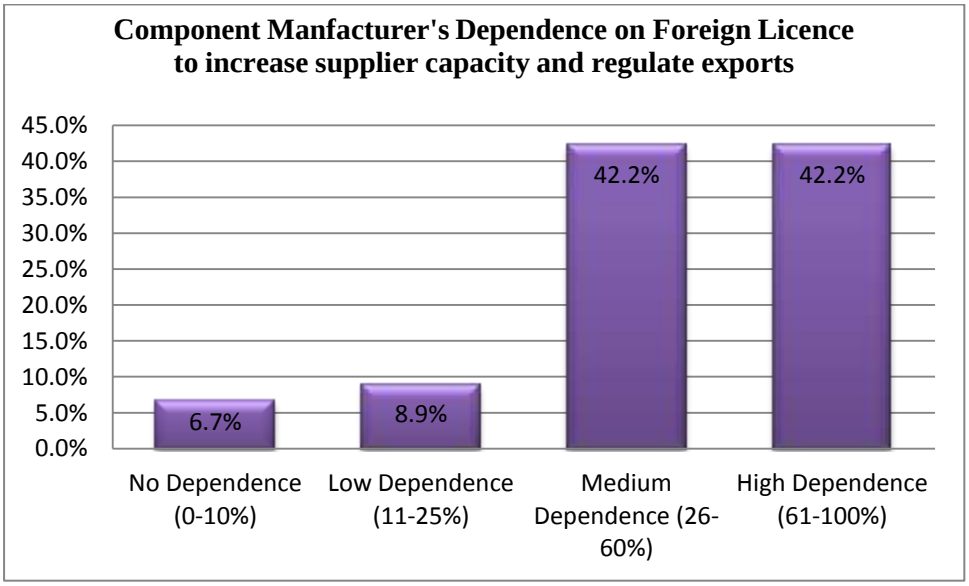


**Figure 4.10 Component Manufacturer's Dependence on Foreign Licences to increase supplier capacity and regulate exports**

The findings in figure 4.10 indicate that 42.2% of respondents rate the component manufacturer's dependence on foreign licences at medium dependence between 26-60%, while the same percentage of respondents (42.2%) of respondent's rate their dependence on foreign licence as high dependence between 61-100%. Of the 42.2% respondents who indicated medium dependence on foreign licences, 24.4% were local suppliers, while 11.1% were international suppliers, of which majority were from tier 2 module assembler operations. The further 42.2% respondents who indicated high dependence of foreign licences, 26.6% were local suppliers and 11.1% were joint venture suppliers, who operate as tier 1 module assemblers.

### 4.4.5 SA's comparative advantages with regard to raw material availability, emerging markets and cost advantages

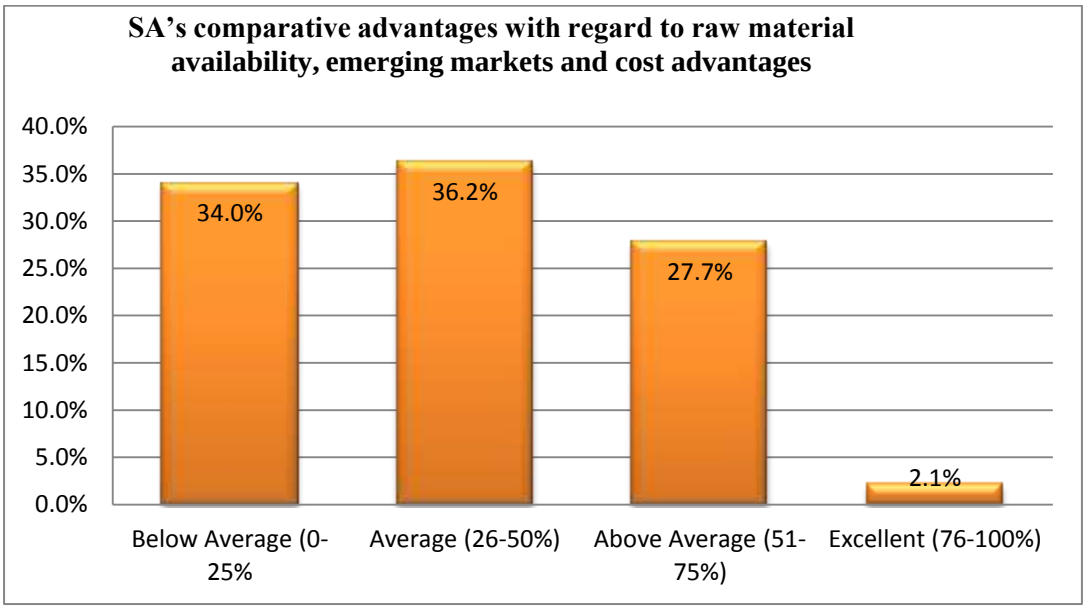


**Figure 4.11 SA's comparative advantages with regard to raw material availability, emerging markets and cost advantages**

Figure 4.11 showed that 36.2% respondents from tier 1 module assembly operations rated South African comparative advantage of raw materials availability and cost advantage as average between 26-50%, while 34% of respondents from tier 1 and tier 2 module assemblers and component suppliers rated South Africa comparative advantage of raw material availability and cost advantage as below average between 0-25%.

These findings can be attributed to the value difference in product categories. Black (2009) stated that raw materials for interior components have a higher value, which has a competitive cost factor due to global demand and economies of scale in the international markets. Taking the ownership structure into account, of the 59.6% respondents from local suppliers, 25.5% indicated that South Africa's raw material comparative advantage and availability is average, while 17% stated that it was above average. Joint venture and international suppliers rated South Africa's raw material comparative advantage and availability as below average, which can be attributed to more specialized raw materials being supplied by the international markets and standardized raw materials that are produced locally being supplied by the local markets.

## 4.5 Objective three: to analyse the economic impact of localization on the growth potential of the automotive component industry in KZN

NAAMSA (2011) explains that automotive components remained the key driver behind the automotive industry's trade balance; therefore the overall picture in respect of the domestic automotive industry's trade balance under the MIDP reflects that exports have increased very rapidly but imports have expanded rapidly also, widening the trade deficit. Black (2009) emphasizes that to achieve higher production volumes from a much smaller range of products, automotive manufacturers need to rationalize the vehicles and components manufactured, to achieve economies of scale, hence increase the volume of local content used in the manufacturing process.

### 4.5.1 Level of influence localization will have on economic growth of the component industry

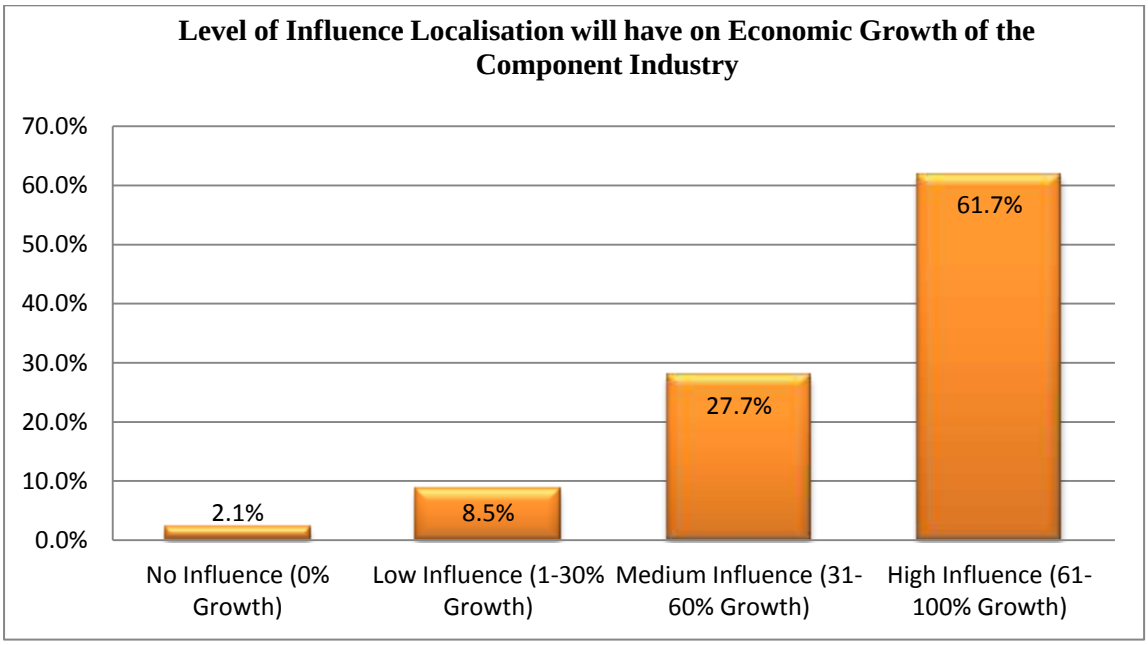


**Figure 4.12 Level of Influence Localization will have on Economic Growth of the Component Industry**

According to figure 4.12, the results reveal that 61.7% of respondents indicated that localization will have a high influences on economic growth in the automotive component industry.

This result reinforces the fact that respondents in all tiers of operation and in every classification of the supply chain view localization as a high influencing factor in the growth of the automotive component industry. Of the 19% internationally owned suppliers responses, 10.6% view localization as low to no influence on the growth of the component sector. The findings support the argument of Black (2011) that stated; pooling local content to achieve economies of scale will influence the growth of local content and have positive impact on the future growth of the industry.

### 4.5.2 Impact of localization on growth potential in the export market

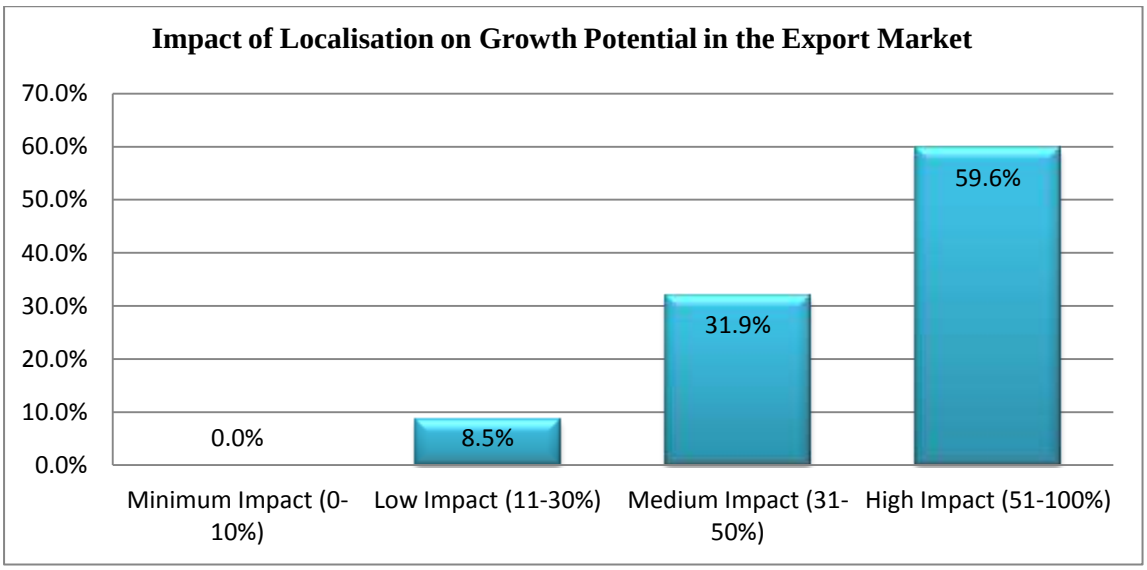


**Figure 4.13 Impact of localization on growth potential in the export market**

The results of the findings in figure 4.13 indicate that 59.6% of the respondents believe that localization in the automotive component industry has high impact on the growth potential in the export market. This sentiment is shared throughout the supplier value chain and by all types of ownership in the different tiers of operation. Hence these findings support the research by Pitot (2011) who concluded that localization can certainly be considered as one of the main driving forces behind the successful integration of the South African component industry into the global market.

### 4.5.3 Influence of localization on the future trends of employment in the component industry

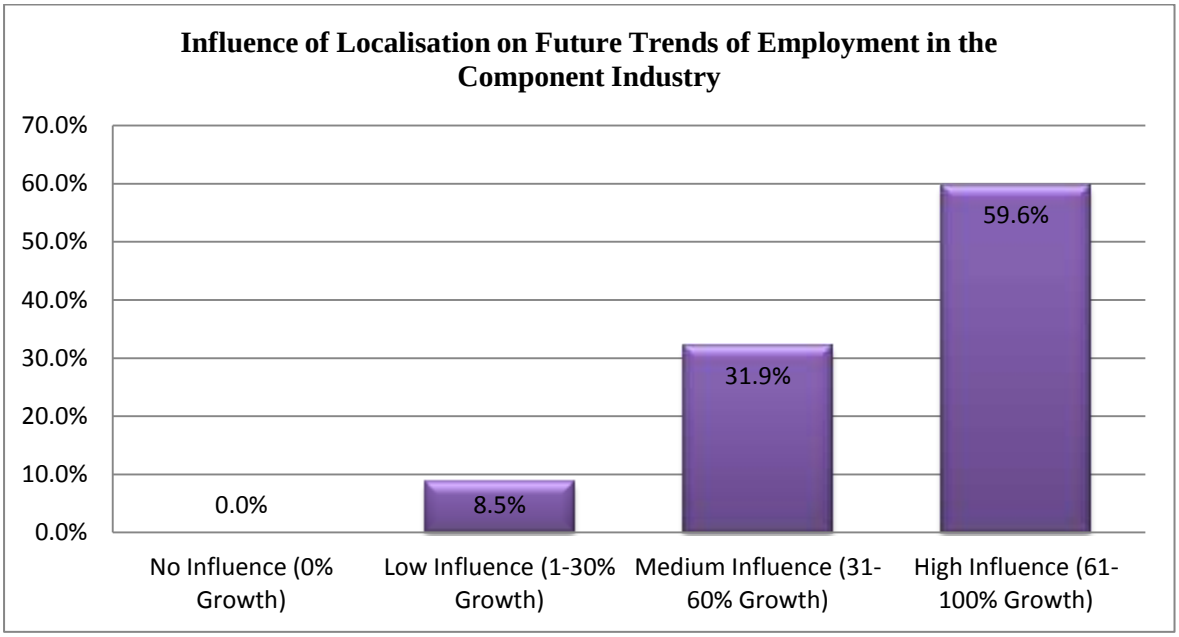


**Figure 4.14 Influence of Localisation on Future Trends of Employment in the Component Industry**

Figure 4.14 indicates that 59.6% respondents stated that localization will have a high influence of between 61-100% on the future trends of employment in the automotive component industry. Tier 1 and tier 2 operations, who employ more than 500 employees, indicated that localization can have a high to medium influence on future employment trends. This may be due to different levels of skills requirements on the different tiers of operation, for example tier 1 operations may require skilled to highly skilled personnel, while tier 2 may require semi-skilled to skilled personal. The overall perception of the 47 respondents from the different types of ownership of component suppliers, being that 28 which are equivalent to 59.6% indicate that localization will have a high influence on the future employment in the component industry.

### 4.5.4 Level of influence localization will have on the component industry turnover

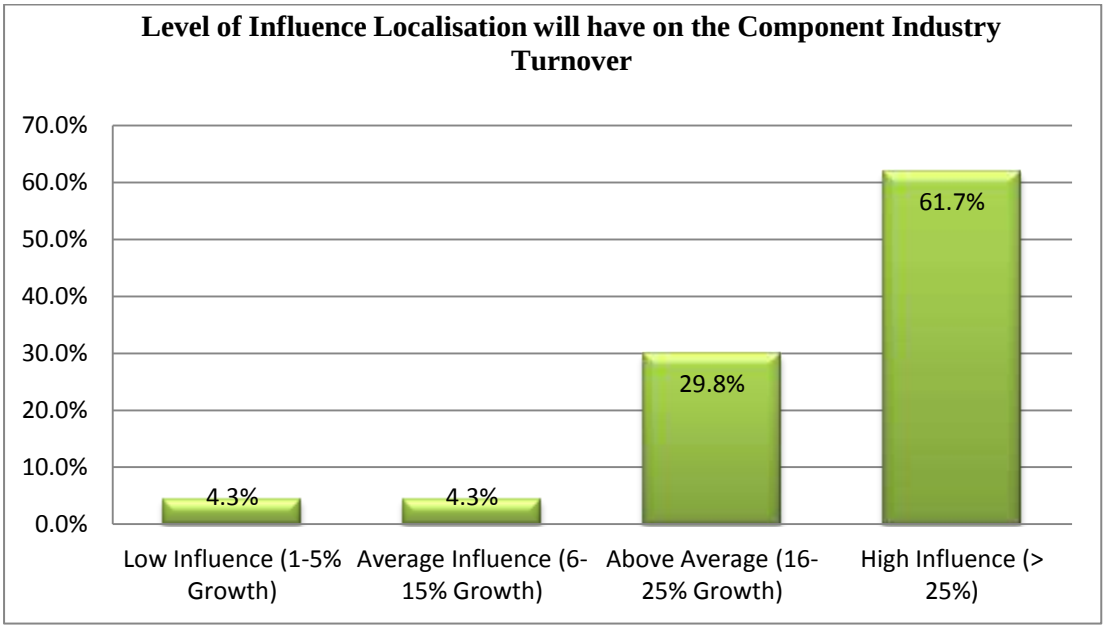


**Figure 4.15 Level of Influence Localisation will have on the Component Industry Turnover**

In figure 4.15 a total of 61.7% respondents indicated that localization will have a high influence of greater than 25% growth on the company's turnover, while 29.8% indicated that localization will have an above average growth of between 16-25% on the company's turnover.

Results of the findings indicate that 40.4% respondents of local suppliers indicated that localization will have a high influence on their turnover due to the high volume of locally manufactured components used in their production process. Joint venture and international suppliers indicated that localization will have a medium to high influence to their turnover because greater than 50% of imported components are used in the production process.

### 4.5.5 Level of influence localization will have on the growth of research and development

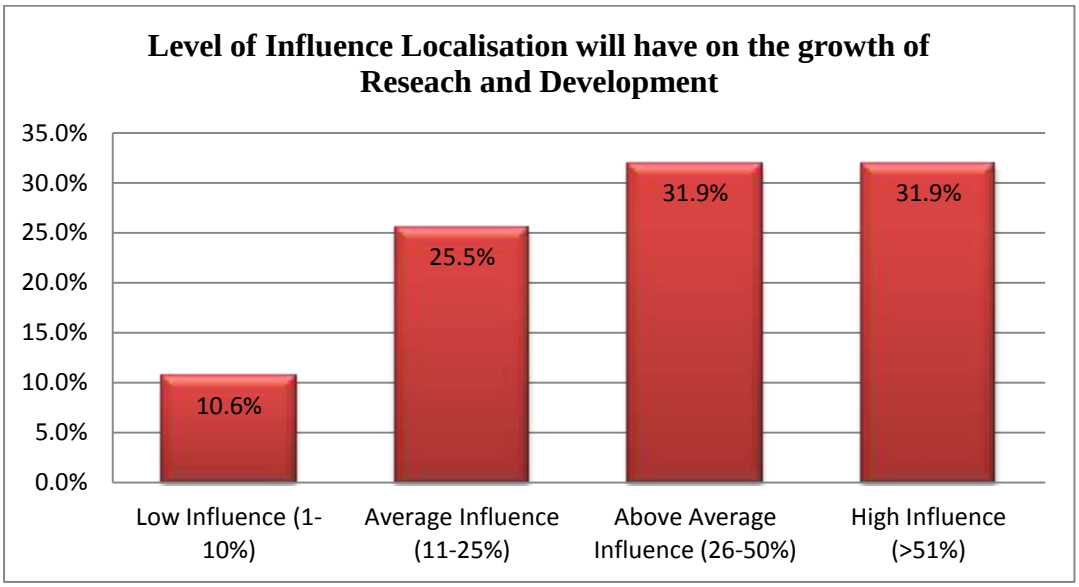


**Figure 4.16 Level of Influence Localisation will have on the growth of Research and Development**

The findings presented in figure 4.16 revealed that 31.9% respondents indicated that localization will have high influence of greater than 51% on the growth of research and development, while 31.9% respondents also indicated that localization will have an above average influence between 26-50% on the growth of research and development. The findings further reveal that tier 1 and tier 2 module assemblers and component suppliers, which are locally and internationally owned companies, view localization as having positive impact on the growth of research and development. This finding agrees with the arguments of Barnes (2010), who argued that by no means were local firms lacking in capacity, however companies spent little or nothing on research and development because of their dependence on foreign partnership and licences.

## 4.6 Objective four: to establish the role of government in optimizing local content in the automotive sector

Cokayne (2011b), stated that government incentives like the APDP and AIS have been instrumental in securing R14 billion in investments from component manufacturers. Barnes (2010), further stated that government's key focus is to encourage local assembly, by identifying how the existing support mechanism could be strengthened to increase localization and competitiveness within the sector, to achieve ambitious targets for annual vehicle production of 1.2 million units by 2020.

### 4.6.1 Component Manufacturer's Dependence on Government Incentives to Optimize Local Content

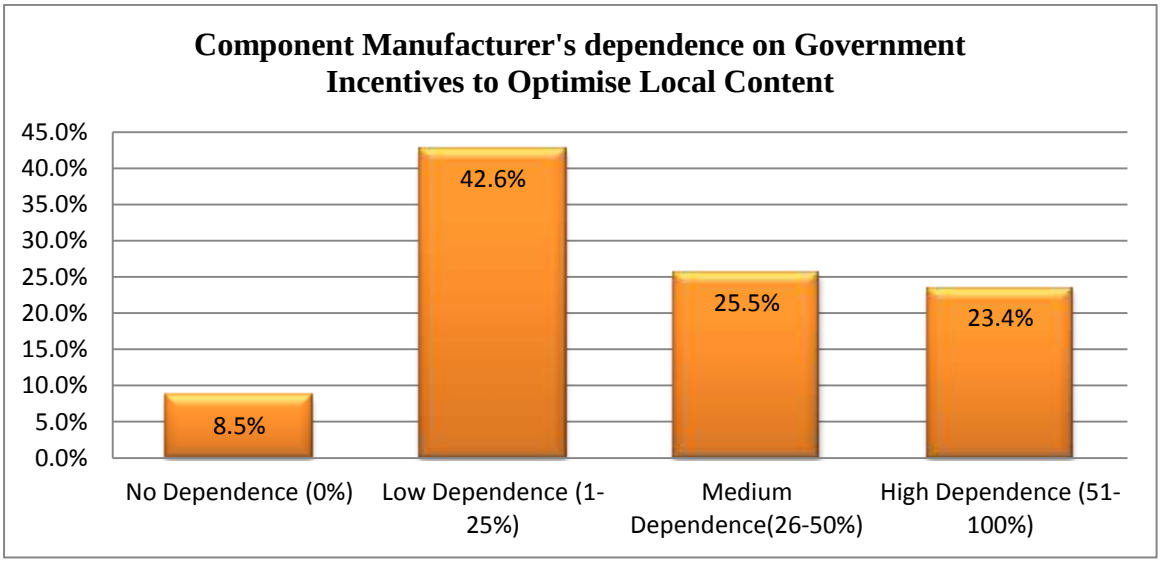


**Figure 4.17 Component Manufacturer's dependence on Government Incentives to Optimise Local Content**

Figure 4.17 indicates that 42.6% of the respondents stated that component manufacturers have low dependence between 1-25% on government incentives to optimise local content in the automotive component industry. Further analysis reveals that 25.5% have medium dependence between 26-50%, while 23.4% have high dependence between 51-100% on government incentives to optimise localisation. Of the 57.4% respondents from tier 1 suppliers, 21.3% indicated low dependence of government incentives to optimise local content, while 14.9% indicated medium dependence and 14.9% indicated high dependence.

The results of this finding indicate that not all component manufacturers benefit from government incentives. An explanation could be that these companies are not aware of the incentives offered by government or the companies do not apply for the incentives.

### 4.6.2 The Impact of Government Incentives on Sustaining Growth of Local Content

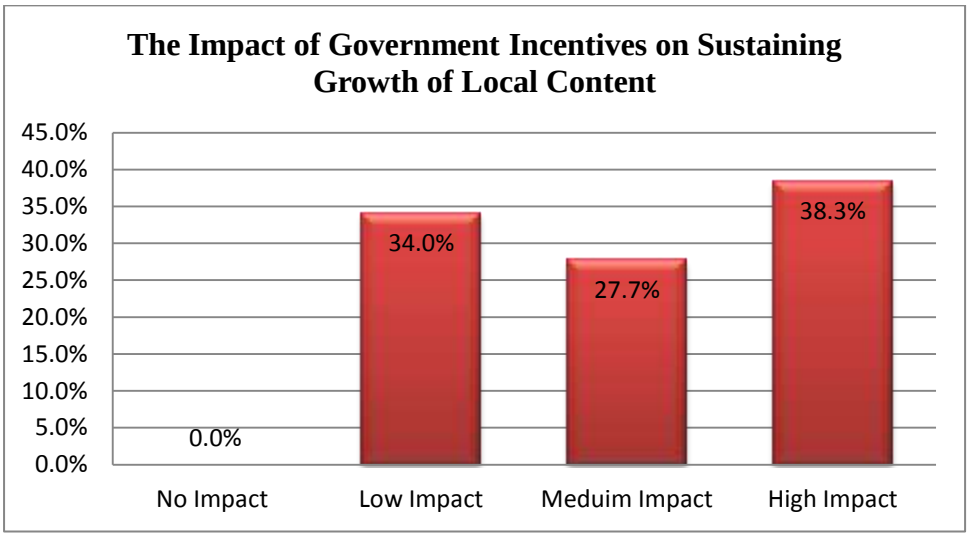


**Figure 4.18 Impact of Government Incentives on Sustaining Growth of Local Content**

The results of the findings presented in figure 4.18 indicate that 38.3% respondents, of which 19.1% are tier 1, 17% are tier 2 and 2.2% are tier 3 operations, rate government incentive as having high impact on sustaining growth of local content. The results further indicate that 34% respondents, of which 17% are from tier 1, 12.8% from tier 2 and 4.2% from tier 3 operations, state that government incentives have a low impact on sustaining growth of local content in the automotive component industry.

Lamprecht (2004) states that the European markets have initiated incentives for European sourced parts by introducing import free tariffs, which attracted South African OEMs, but presented a huge threat to local South African suppliers, as this reduced the comparative cost advantage. Therefore the results of this finding indicate that government incentives will have a high impact on sustaining growth of local content thus enabling local manufacturers to be globally competitive.

### 4.6.3 The influence of Tariffs on the growth of Local Content

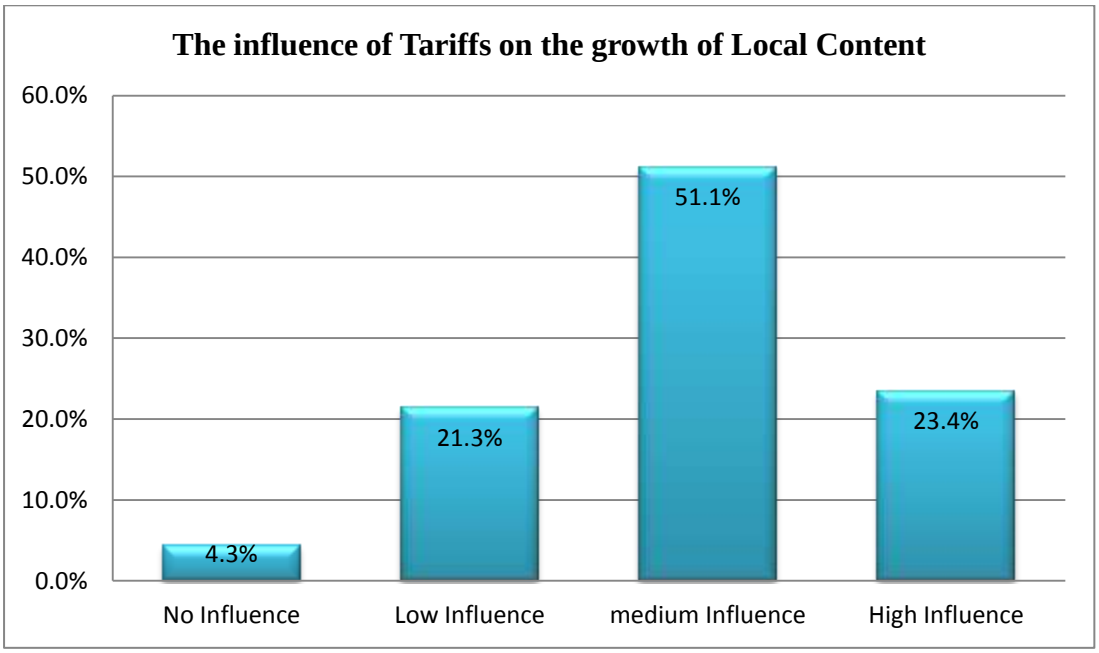


**Figure 4.19 Influence of Tariffs on the growth of Local Content**

Figure 4.19 indicates that, 51.1%of the respondents indicated that tariffs will have a medium influence on the growth of the local content, while 23.4% respondents indicated that tariffs will have a high influence on the growth of local content. The results indicate that locally owned and joint venture suppliers are in agreement that implementation of tariffs will influence the growth of local content in the automotive component industry. Of the 57.4% of tier 1 module assembler's responses, 36.2% indicated that tariffs have a medium influence, while 10.6% indicate that tariffs have a high influence on the growth of local content.

This finding is in agreement with Barnes (2010) who stated that low import tariffs have put considerable pressure on the competitiveness of the South African automotive component manufacturing industry, hence implementation of tariffs will help reduce the trade deficit that the South African automotive industry seen over the past years.

### 4.6.4 The Impact of Government Support and Intervention in enhancing Optimisation of Local content

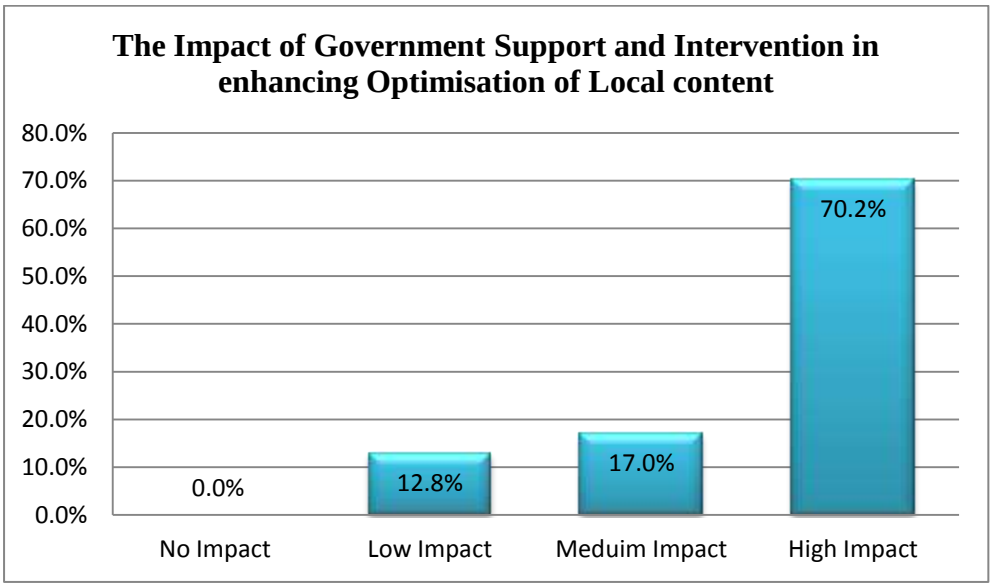


**Figure 4.20 Impact of Government Support and Intervention in enhancing Optimisation of Local content**

According to figure 4.20, majority of the respondents are in agreement that government support and intervention will have a high impact in enhancing optimization of local content in the automotive component industry. Of the 70.2% responses, 38.3% are from tier 1 operations and 29.8% are from tier 2 operations, who form part of the local, joint venture and international owned suppliers, who agree that government support and intervention will have a high impact on localization. The results of this finding agree with Flatters (2002) who stated that government intervention, support and attractive incentives have been identified as the most important factors impacting on the growth of the automotive industry.

### 4.6.5 The Influence of Government Policy in determining Level of Local Content

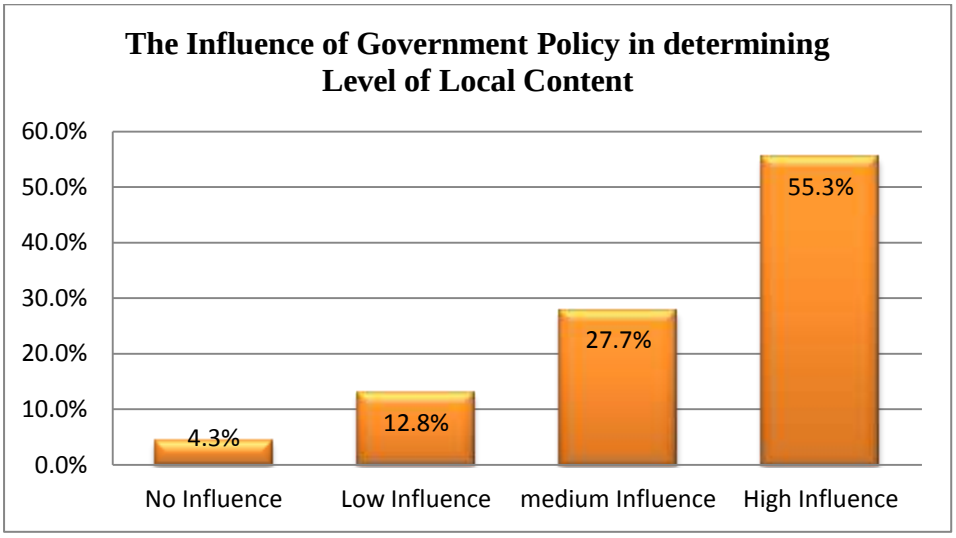


**Figure 4.21 Influence of Government Policy in determining Level of Local Content**

The findings presented in figure 4.21 indicated that 55.3% respondents view government policy as high influence in determining the level of localization, while 27.7% respondents view government policy as medium influence in determining the level of localization in the automotive component industry. Joint venture, locally and international owned companies share the same sentiment that government policy will have a medium to high influence on determining the level of local contents in the automotive component industry. The results of this finding support Ellis (2008), who stated that the key focus of government policies like the APDP are to encourage local assembly that has economies of scale in order to increase the depth of local component manufacturing to international output levels.

## 4.7 Summary

The research findings from the data collected through the questionnaire show that majority of the respondent's state that the biggest challenges faced by the component industry are the domestic manufacturing supplier pricing in comparison to global supplier and component manufacturers dependence on foreign licenses to increase supplier capacity and regulate exports.

The findings indicated that localization will have a high impact on the economic growth of the component industry, with government support and intervention in enhancing the level of local content in the manufacturing process.

The research findings from the data gathered through the questionnaire substantiate the conclusion that optimization of local content in the automotive component industry will have positive economic impact and ultimately grow the industry to be competitive with international manufacturers.

The next chapter will extract the essence of the findings from the empirical data that has been presented above.

# CHAPTER FIVE

## Recommendations and Conclusions

### 5.1 Introduction

The exploration of localization surrounding the component manufacturers in KZN has shown that there exists a need to increase localization to ensure future growth and sustainability of the automotive component industry. It is clear the South African automotive industry can no longer be seen as distinct from the global industry, but rather one industry fighting for survival in a global arena.

The aim of this study was to determine the impact localization will have on the future economic growth of the automotive component industry. The literature review revealed that the strategy of the OEM's impacted significantly on the development of the automotive component manufacturers in an intensely competitive global industry. Government, trade and industrial policy play an important role in attracting investments into South Africa and creating market access for exports.

The literature further revealed that the trade deficit has widened from 2009 to 2010, due to the rapid expansion of imports and automotive components remained the key driver behind the negative trade balance. Now that the South African automotive component industry has been integrated into the global auto environment, there is collective action to raise the domestic automotives industry's prominence worldwide in respect to its capabilities and positive developments achieved. The empirical results of this study was presented, analyzed and discussed in chapter 4. This chapter seeks to confer the findings of each objective and provide recommendations and conclusions for these findings.

### 5.2 Has the data answered the research question?

The research problem identified is both timely and important as the South African government is in the process of finalizing the APDP incentives, which will have direct impact on the component manufacturers.

Therefore the objectives of this study were identified with the aim of determining the impact localization will have on the future growth of the automotive component sector.

The results of the findings for objective one indicate that more than 50% of imported components are used in the production process, while only up to 30% of locally manufactured components are used. Based on the findings it can be concluded that the extent of localization in the automotive component industry in on average 30%, which is valued more than R1 million per month in tier 1 and tier 2 module assembly operations.

Based on the findings of objective two, one can argue that the major challenges faced by the automotive component industry are the local manufacturers pricing in comparison to global manufacturers and the high level of dependence that local component manufacturers have on foreign licenses to increase supplier capacity and regulate exports. It is clearly evident that the skills capabilities within the automotive component industry is significantly comparable to international standards

The findings of objective three indicate that 61.7% of the South African based automotive component manufacturers strongly believe that localization will have a significant influence on the economic growth of the component industry. Importantly, it is also highlighted that localization will enable component manufacturers to become globally competitive, hence positively influencing the growth potential in the export market.

Given the findings presented in objective four, it is clearly evident that government support and intervention will have a high influence in optimizing local content in locally assembled vehicles. The industry supports stringent government policies in determining the level of local content in South African assembled vehicles. It is interesting to note that a high percentage of respondents have high dependence on government incentives to optimize localization, while an equal percentage of respondents have low to no dependence on government incentives to optimize localization. This could possibly be that they are not aware of the incentives offered by government, or that the components being imported does not qualify for government incentives such as completely built up engines. Based on the results of the findings, the expectations of the objectives were achieved, which provided meaningful and useful information to component manufacturers, OEM’s and provincial and local government.

## 5.3 Recommendations and Way Forward

The recommendations put forward are based on the findings of the objectives of this study, the review of literature and the discussions above which will benefit both the OEM and the automotive component manufacturers.

### 5.3.1 Adoption of Low-cost Provider Strategies to Improve Competitiveness

Barnes (2010), stated that the lower costs of local parts have been identified as a competitive advantage that local suppliers have over their international counterparts, however local suppliers now have to compete with suppliers from developing countries, such as Thailand and India. With an increasingly competitive world market, characterized by excessive production capacity, local manufacturers need to pursue further substantial improvements in operational efficiencies and world class manufacturing standards.

The automotive component industry must continue to pursue options of restructuring and rationalization. Issues such as high scrap rates, low productivity and poor staff attendance have to be addressed as part of low-cost provider strategies in order to achieve cost advantage. It is evident from the findings of objective one that the levels of imported components super cede local components used in the assembly process that supports the findings of NAACAM (2011), who highlighted that 65% of imported components compared to 35% local components are used in the manufacturing process. Therefore achieving a cost competitive advantage will increase the volumes of locally manufactured components and significantly reduce the volumes of imported components used in the assembly process.

### 5.3.2 Improve Internal Competitiveness

To successfully take the automotive component industry into the next decade of global competitiveness, it is critical that in addition to government support, firms also have a role to play in upgrading their own capabilities. The ability of a firm to upgrade its competitiveness is dependent on its absorptive capacity and it is up to the leaders of the component manufacturers to promote development of knowledge conversion mechanisms, so that knowledge obtained from participation in the global arena can be effectively internalized, resulting in improved skills capabilities within the component manufacturing industry.

Despite various challenges faced, the formation of strategic alliances to enhance technical capabilities has good strategic intent. Although various OEM-Supplier led initiatives are agreed to, it is considered that the existing gap will not be closed by self-effort. Therefore the quickest transfer of technology, skills and expertise will be achieved by supplier alliance, which will support TSA mandatory requirement of developing human resources to ensure increased localization strategy is cascaded to all level of the organization. The findings of objective two indicate that the skills capabilities within the automotive component industry is comparable to international standards, however Barnes (2009), stated that TSA is pessimistic about growth prospects in the automotive component industry due to limited skills. Therefore continuous improvement of technical expertise by supplier alliance, will reduce the dependence on foreign licences and increase the viability to compete for new business.

### 5.3.3 Rationalization to Gain Economies of Scale

Miotti and Sachwald (2001) research in the Korean automotive component industry indicated that the main factor contributing to total productivity growth is economies of scale. Rationalization of vehicle platforms at OEM level will increase production volumes through economies of scale at the component manufacturer's level, resulting in a reduction in the unit cost per component. The reduction of platforms will also put less strain on the component manufacturers with regard to capital investment requirements, which will also impact on the unit cost of the components. Reduction in unit costs will enable local component manufacturers to become more competitive to global suppliers pricing, resulting in an increase in demand for local content. The findings of objective two clearly identify pricing as a major challenge for the automotive component manufacturers competitiveness.

Black (2011) stated that on a national level, it is clear that the automotive industry is in need of an efficient automotive component manufacturing industry, to grow the volume of local content in South African assembled vehicles. It is therefore recommended that OEM's develop local component manufacturing base, as this sector of the industry is not privileged to all incentives offered to OEM's. The goal of continuously developing a competitive local supply base will ensure continuous growth resulting in an increase in global competitiveness in regard to research and development, skills capabilities and unit price per component.

### 5.3.4 Product Development Capabilities

Product development capability is one of the most critical challenges to increased localization. The major underlying reason for poor product development capabilities lies in the lack of design competencies. Component manufacturers' failure in the past to develop components in time for new model launch was counteracted by resourcing completely knocked down (CKD) parts from international suppliers. This recourse is no longer available; hence with increased local content there is greater pressure on component manufacturers to develop acceptable parts timeously.

Lorentzen (2005), emphasized the need for South African firm's to grow their R&D capabilities, as R&D is one of the key driving factors to localization. It is recommended that TSA, focus on developing suppliers in all tiers of operation, as it is evident from the findings of objective three that localization will have a high influence on R&D in the component manufacturing industry. It is further recommended that TSA aggressively pursues and support alliance building between local component manufacturers and international organizations. At an operational level, component manufacturers should increase their focus on research and development to improve their design competencies.

### 5.3.5 Maximizing Government Incentives

The OEM's investment decisions impacts on their sourcing decisions, and consequently on the component manufacturers in the automotive value chain. The developments by the OEM's determine the developments of the automotive component manufacturers; hence the growth of local content in the automotive component sector is dependent on the OEM's sourcing decisions. The key recommendation is that government support packages like the APDP be announced immediately, as policy certainty and government incentives are imperative to influence the decision of OEM's, to sustain future production of new models in the country. The results of objective four clear indicates that component manufacturers view government incentives as having high influence on sustaining growth of local content in the automotive industry.

The APDP, in strong contrast to the MIDP, moves away from export promotion to the promotion of production efficiency, regardless of the destination of the manufactured product. The MIDP import export complementation scheme will be phased down, at the implementation of the APDP. Therefore it is recommended that government must guard against phasing down the import export complementation scheme too aggressively and rapidly as the world market has an excess production capacity of 24 million vehicles, which would make it difficult for local OEM's and component manufacturers to increase export volumes. Lessons learned from the textile industry should be invaluable in determining the paste of the phasing down scheme. The implementation of the APDP, would require South African OEM's and component manufacturers to further improve on increasing the volume of local content used in the production process and to increase export volume and thus become internationally more competitive.

Ellis (2008) stated that government key focus is to achieve the ambitious targets of 1.2 million vehicles by 2020 by increasing the depth of local component manufacturing to international output levels and creating sustainable jobs. Therefore it is recommended that in order to increase local production and limit job loss in the component industry in South Africa, government intervention and support is critical in implementing restrictions on imported vehicles and components, so that the inflow of components into the country is limited making it necessary for OEM's to invest in the development of a local supply base in the country. It is clearly evident from the findings of objective four that government support and intervention is seen as a high influential factor in impacting on the optimization of local content in the automotive component industry.

## 5.4 Conclusions and implications of the study

Through the literature research, it was established that localization is a challenge in the automotive component industry in South Africa. This was further evident in the research carried out with executive and senior managers of automotive component manufacturers in KwaZulu-Natal.

There results of the research indicates a clear trend, that optimization of local content in the automotive component industry will have a significant impact on the future growth of the sector, which will positively influence future employment trends within the sector.

It is quite clear that South African based automotive component manufacturers are struggling to compete in increasingly demanding domestic automotive markets due to competiveness in pricing, availability of raw material and low cost imports. The key interlinked findings emerged from the research indicate that OEM's are increasingly sourcing their major components from multinational owned component manufacturers, who utilize more than 50% imported components in their production process, which impacts negatively on localization.

It can be concluded that the economic sustainability of the automotive component manufacturers in South Africa are not only governed by market forces and corporate performance, but also affected by regulations and activities on government level and controlled on the industry level. Therefore automotive component manufacturers revealed a high level of continued dependence on government support for the industry.

It must also be noted that the survival and growth of the South African automotive component industry in the medium to long term is highly dependent on government regulations and initiatives, as the quests for economies of scale and increased competitiveness must be supported by national structures and regulations. Nevertheless, the immediate responsibility lies with the automotive industry and especially the OEM's and component manufacturers, as a major part of the automotive value chain.

The South African government has shown commitment to the automotive industry by introducing programmes like the APDP to support the initiative of optimizing local content in South African assembled vehicles. The successful implementation of the APDP by 2013 will help the automotive component sector to become one of the major role players in creating a healthier economical situation in South Africa.

Despite local content requirements and demand for increased local content by government and industry, the negative relation to local content and imports has negative impact on the trade deficit. Hence it can be concluded that the current dependence on local content are caused by deficiencies in the local supply chain in terms of technological capabilities and component pricing. If the South African government is to successfully facilitate the improved competitiveness of the domestic automotive components industry, attention should be placed on those key performance criteria which the industry views as critical. These relate to import tariffs, import export complementation and government policies such as the APDP.

When analyzing the challenges of optimizing local content in domestically assembled vehicles, the significant result achieved indicated that automotive component manufacturers have a high dependence on foreign licences to increase supplier capacity and regulate exports. Thus it can be concluded that for South African automotive component manufacturers to be globally competitive, relationship between the component manufacturing industry and OEM's is paramount to both preceding measures of export and competitiveness growth.

Automotive component manufacturer's participation in global value chains can stimulate learning and the acquisition of technological capabilities. However, upgrading is not automatically guaranteed simply by participation- it requires active effort and investment by component manufacturers.

## 5.5 Limitations to this study

There is unfortunately limited literature available on the South African automotive industry in general and on the localization topic in particular. The writings by academic and researchers in this sector are limited and the institutes that carry out research are focused on providing a service to their customers, being mainly government. Active institutions that manage the automotive component industry in KZN restrictively support initiatives of research within the sector.

The component industry feels threatened to share information with academic students, as they believe that there is an established automotive cluster in KZN that has the required data available, which should be shared with academic student, but this is not so. Automotive component suppliers that are South African owned businesses, feel threatened to share information on their production processes with regard to the use of local and imported content because they are fearful that their companies will be sidelined by multinationals who represent the majority stake of the market in South Africa.

In hindsight, it is difficult to make sound conclusions using the data collected via the questionnaire, as the data collected is the personal perspective of the person that answered the questionnaire.

In terms of the questionnaires sent out to the automotive component manufacturers, a common shortcoming of e-mailed questionnaires is that the researcher does not know whether the person who completed the questionnaire understood all the questions. In some instances the questionnaire was answered just because the researcher hand delivered the questionnaire to the company and a respondent was asked by senior officials who did not want to participate to answer the questionnaire.

The response rate of the questionnaires was another challenge. It was found that when contacting various respondents prior to emailing the questionnaire; many of them were working under pressure due to the design launch of the new Corolla. A number of respondents declined to participate and stated that this information has been gathered by the automotive cluster, while others indicated that they would try but could not make any promises. Despite these challenges, an acceptable response rate of 72.3% was achieved.

## 5.6 Recommendations for Future Research

A number of recommendations can be made to increase the insight into the drivers and extent of localization in the South African automotive component industry. The findings of this study speculate that some form of upgrading is taking place and this proposition can be better researched by means of a longitudinal study.

Recommendations for future research would be to investigate the APDP's production incentive framework impact on the level of imported components brought into South African automotive industry after its inception in 2013.

A further recommendation for future research would be to investigate the impact the APDP's production incentive strategy will have on the growth of the automotive component manufacturers in South Africa. As part of this research one could also analyse the impact that the APDP has on the component pricing in comparison to the global industry.

Decrease of local content levels was one of the strategic objectives of the MIDP. It is recommended that future research investigates the extent that the production incentive based strategy of the APDP will have in increasing local content in locally manufactured cars.

A larger sample size always increases the statistical significance of the results and any attempt to get the study done at a national level, where more firms could participate is always recommended.

## 5.7 Summary

The aim of this study was to establish the impact localization will have on the potential growth and sustainability of the automotive component industry in KZN. The data collected answered the questions of the objectives and confirmed that optimization of local content will have a positive impact on the economic growth of the component sector. The study has also shown that government support, intervention and policy will have a high influence in enhancing optimization of local content.

Although there were limitations to this study, as successful response rate of 72.3% was achieved. The outcomes of this study are beneficial to the automotive component suppliers, TSA and as well as local and provincial government. It is believed that the findings of this study will contribute to the body of knowledge on this current subject of localization and add to the information available to stakeholders with which they can judge the impact localization will have on the growth of the automotive component industry.

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# APPENDIX 1

## UNIVERSITY OF KWAZULU-NATAL

## GRADUATE SCHOOL OF BUSINESS AND LEADERSHIP

Dear Respondent,

**MBA Research Project**

**Researcher**: Dhanesh Rampersad (0788013411)

**Supervisor**: Dr A. Kader (0829010225)

**Research Office**: Ms P Ximba 031-2603587

I, **Dhanesh Rampersad** an MBA student, at the Graduate School of Business and Leadership, of the University of KwaZulu-Natal. You are invited to participate in a research project entitled: Optimization of local content in the automotive component industry in KwaZulu-Natal. The aim of the study is to determine how optimizing local content in domestically assembled vehicles can impact on the future growth and sustainability of the sector.

Through your participation the study will add economic value to the following stake holders:

OEM- The study will enable the OEM to:

- Identify areas of cost reduction
- Enhance supplier development to improve efficiency and quality
- Enhance technological advancement of suppliers

Component manufacturers- The study will provide a guideline to:

- Developing resources and capabilities
- Enhancing technical skills
- Improve competitive advantage to international suppliers

Government- The study will:

- Highlight areas of government intervention
- Enhance job creation
- Enhance multiplier growth in other sectors
- Identify opportunities for foreign direct investment

People of KZN- The study will:

- Identify employment opportunities and areas of skills development
- Contribute to social economic upliftment of KZN.

Your participation in this project is voluntary. You may refuse to participate or withdraw from the project at any time with no negative consequence. There will be no monetary gain from participating in this survey. Confidentiality and anonymity of records identifying you as a participant will be maintained by the Graduate School of Business and Leadership, UKZN.

If you have any questions or concerns about completing the questionnaire or about participating in this study, you may contact me or my supervisor at the numbers listed above.

The survey should take you about **10-15** minutes to complete. I hope you will take the time to complete this survey.

Sincerely

Investigator's signature_____

**APPENDIX 2**

**UNIVERSITY OF KWAZULU-NATAL**
**GRADUATE SCHOOL OF BUSINESS AND LEADERSHIP**

**MBA Research Project**

**Researcher**: Dhanesh Rampersad (0788013411)
**Supervisor**: Dr A. Kader (0829010225)
**Research Office**: Ms P Ximba 031-2603587

**CONSENT**

I……(full names of participant) hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participating in the research project.

I understand that I am at liberty to withdraw from the project at any time, should I so desire.

**SIGNATURE OF PARTICIPANT: _____DATE:_____**

……

# APPENDIX 3

## Questionnaire

### Section A - General Questions

1. Please indicate your current position in the company

| | |
|---|---|
| General Manager | |
| Operations Manager | |
| Purchasing Manager | |
| Supply Chain Manager | |
| Other (Specify) | |
| | |

2. How many years have you worked in the company?

| | |
|---|---|
| 0-5 years | |
| 6-10 years | |
| 11-15 years | |
| More than 15 years | |

3. Please indicate the number of employees in your company

| | |
|---|---|
| 0-100 | |
| 101-250 | |
| 251-500 | |
| More than 500 | |

4. How would you categorize your company as a component supplier?

| | |
|---|---|
| Tier 1 | |
| Tier 2 | |
| Tier 3 | |
| Tier 4 | |

5. In the automotive component industry, how is your company classified in the value chain?

| | |
|---|---|
| Material supplier (e.g. tapes, glues, steel) | |
| Component supplier (e.g. supply of sub parts to a component manufacturer) | |
| Component manufacturer | |
| Module assembler (imported parts assembled and supplied to OEM) | |
| Distributor (Agent to a global supplier) | |

6. Please indicate the type of ownership of your company

| | |
|---|---|
| Locally owned South African supplier | |
| Locally owned South African supplier operating under international licences | |
| Joint venture of locally owned South African and International Supplier | |
| International owned supplier | |

**Section B- The extent of localization in the automotive component industry**

1. How would you rate the volume of locally manufactured components used in your manufacturing/ assemble process

| No value | | Low Value | | Medium Value | | High Value | |
|---|---|---|---|---|---|---|---|
| 0 % | | 1-30% | | 31-60% | | > 60% | |

2. What percentage of import components are being used in your production/ assembly process?

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0-20% | | 21-35% | | 36-30% | | > 50% | |

3. What percentage of your product is made from local content?

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0-30% | | 31-50% | | 51-70% | | 71-100% | |

4. What's the value (Rands) of local content used per month?

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0-200 000 | | 200000-500000 | | 500000-1mil | | > 1 mil | |

5. What percentage of local suppliers form part of your supplier data base?

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0-15% | | 16-35% | | 36-50% | | > 51% | |

**Section C- The challenges of optimizing local content in domestically assembled vehicles**

1. What impact has import tariffs have on increasing localization within the automotive component manufacturing processes?

| No impact | | Low impact | | Medium impact | | High impact | |
|---|---|---|---|---|---|---|---|
| 0-10% | | 11-30% | | 31-50% | | 51-100% | |

2. How would you rate the skills capabilities of component manufacturers?

| Inferior | | Comparable | | Above average | | Superior | |
|---|---|---|---|---|---|---|---|
| 0-30% | | 31-55% | | 56-70% | | 76-100% | |

3. How would you rate domestic component manufacturing suppliers pricing in comparison to global suppliers?

| Non competitive | | Average | | Competitive | | Very competitive | |
|---|---|---|---|---|---|---|---|
| Below 0% lower | | 0-15% lower | | 16-29% lower | | 30-50% lower | |

4. How would you rate component manufacturer's dependence on foreign licences to increase supplier capacity and regulate exports?

| No dependence | | Low dependence | | Medium dependence | | High dependence | |
|---|---|---|---|---|---|---|---|
| 0-10% | | 11-25% | | 26-60% | | 61-100% | |

5. How would you rate SA's comparative advantages with regard to raw material availability, emerging markets and cost advantages?

| Below average | | Average | | Above average | | Excellent | |
|---|---|---|---|---|---|---|---|
| 0-25% | | 26-50% | | 51-75% | | 76-100% | |

**Section D- Economic Impact of localization on the future growth and sustainability of the automotive component industry**

1. What level of influence will localization have on the economic growth of the component industry?

| No influence | | Low influence | | Medium influence | | High influence | |
|---|---|---|---|---|---|---|---|
| 0% growth | | 1-30% growth | | 31-60% growth | | 61-100% growth | |

2. What impact will localisation have on improving growth potential in the export market?

| Minimum impact | | Low impact | | Medium impact | | High impact | |
|---|---|---|---|---|---|---|---|
| 0-10% | | 11-30% | | 31-50% | | 51-100% | |

3. How would optimization of local content influence the future trends of employment in the component industry?

| No influence | | Low influence | | Medium influence | | High influence | |
|---|---|---|---|---|---|---|---|
| 0% growth | | 1-30% growth | | 31-60% growth | | 61-100% growth | |

4. What level of influence will localisation have on the component manufacturer's turnover?

| Low influence | | Average influence | | Above average influence | | High influence | |
|---|---|---|---|---|---|---|---|
| 1-5 % growth | | 6-15 % growth | | 16-25% growth | | > 25% growth | |

5. What level of influence will localization have on the growth of research and development in the component manufacturing industry?

| Low influence | | Average influence | | Above average influence | | High influence | |
|---|---|---|---|---|---|---|---|
| 1-10 % growth | | 11-25 % growth | | 26-50% growth | | > 51% growth | |

**Section E- Governments role in optimizing local content in the automotive component industry.**

1. How would you rate your company's dependence on government incentives to optimize local content?

| No dependence | | Low dependence | | Medium dependence | | High dependence | |
|---|---|---|---|---|---|---|---|
| 0% | | 1-25% | | 26-50% | | 51-100% | |

2. How would you rate the impact of the incentives offered by government to sustain the growth of local content in the component industry?

| No impact | | Low impact | | Medium impact | | High impact | |
|---|---|---|---|---|---|---|---|
| 1 | | 2 | | 3 | | 4 | |

3. What level of influence did tariffs have on growth of local content in the component industry?

| No influence | | Low influence | | Medium influence | | High influence | |
|---|---|---|---|---|---|---|---|
| 1 | | 2 | | 3 | | 4 | |

4. What impact will government support and involvement have on enhancing optimization of local content in the component industry?

| No impact | | Low impact | | Medium impact | | High impact | |
|---|---|---|---|---|---|---|---|
| 1 | | 2 | | 3 | | 4 | |

5. What influence does government policy have on determining the level of local content used in domestically assembled cars?

| No influence | | Low influence | | Medium influence | | High influence | |
|---|---|---|---|---|---|---|---|
| 1 | | 2 | | 3 | | 4 | |

# APPENDIX 4

UNIVERSITY OF
KWAZULU-NATAL
INYUVESI
YAKWAZULU-NATALI

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10 February 2012

**Mr Dhanesh Rampersad (210526159)**
**Graduate School of Business and Leadership**

Dear Mr Rampersad

**PROTOCOL REFERENCE NUMBER: HSS/0045/012M**
**PROJECT TITLE: Optimisation of local content in the automotive component industry in KwaZulu Natal.**

In response to your application dated 6 February 2012, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol has been granted **FULL APPROVAL.**

**Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment /modification prior to its implementation. In case you have further queries, please quote the above reference number. Please note: Research data should be securely stored in the school/department for a period of 5 years.**

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

.....
**Professor Steven Collings (Chair)**
**Humanities & Social Science Research Ethics Committee**

cc Supervisor Dr A Kader
cc Mrs C Haddon